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EDWARDS AND NEWTON

DISCUSSION of the early philosophical speculations of Jonathan Edwards has concerned itself chiefly with those aspects of his thought which resemble the idealism of Berkeley. And this is not surprising. Such statements as, "Since all material existence is only idea", and, "the world, that is, the material universe, exists nowhere but in the mind", certainly suggest *The Principles of Human Knowledge,* although Professor Gardiner's careful analysis and comparisons make it improbable that they were derived from Berkeley.[1] Newton has been mentioned in this connection by Gardiner as a probable contributor to Edwards's thinking, particularly by his discoveries in the field of color. But so far as I am aware no detailed examination has been given to the influence of Newton upon Edwards's general conception of the universe and upon a second distinct line of metaphysical reasoning which follows a different trend from that of what for convenience I may call the first or 'idealistic' pattern. Both first and second lines of reasoning were probably suggested by the study of Locke's *Essay* which Edwards read in his fifteenth year. But whereas the first-mentioned pattern was developed from Locke's emphasis upon ideas as the source and material of knowledge, this second and less noticed pattern had its origin in Locke's doctrine that solidity is the basic characteristic of bodies. The first pattern challenges the intelligibility of a world "without any one's knowing of it"; the second presents a physical and metaphysical analysis of solidity. Both lines of reasoning have their terminus in God. But whereas the first aims to prove the "necessity of the Eternal Existence of an All-comprehending Mind", the second seeks the upholding

[1] H. N. Gardiner, "The Early Idealism of Jonathan Edwards", *The Philosophical Review* IX (1900) 573-96.

cause of a universe of atoms and solid bodies. Edwards in this second line of thought deals with the world of Newton, but goes beyond Newton in asserting a cause of gravitation—the "hypothesis" which Newton refused to frame in a treatise of experimental physics. I propose to consider first a general conception of the universe common to Newton and Edwards, and then to examine with more detail the conceptions of atoms, solidity, and gravitation as treated in Edwards's argument.

I

A fundamental conception, common to Newton and Edwards, although it can not be affirmed positively that Edwards took it directly from Newton, is that of Laws as the essential aspect of the universe. For the mathematician and physicist this meant that his task was "to subject the phaenomena of nature to the laws of mathematics".[2] At the beginning of the *Principia* he set the Laws of Motion, and in its propositions developed the laws of gravitation as seen in the solar system. In the *Opticks*[3] he expresses the opinion that the primitive particles of which bodies are composed "are moved by certain active Principles, such as is that of Gravity, and that which causes Fermentation, and the Cohesion of Bodies". He then adds, "These Principles I consider, not as occult qualities, supposed to result from the specifick Forms of Things, but as general Laws of Nature, by which the Things themselves are form'd." Newton gave brilliant exposition of that substitution of laws of motion for forms and essences to which Kepler and Galileo had previously contributed.[4]

Edwards seized upon the conception of laws as suiting admirably the system of the universe which he projected. In No. 36 of "Subjects to be Handled in the Treatise on the Mind" he had already framed his thesis: "The manifest analogy between the Nature of the Human Soul and the Nature of other Things. How Laws of Nature take place alike. How it is Laws that constitute

[2] R. M. Blake, "Newton's Theory of Scientific Method", *The Philosophical Review* XLII (1933) 466-71. [3] Question 31.

[4] "For Newton, then, science was composed of laws stating the mathematical behavior of nature solely—laws clearly deducible from phenomena and exactly verifiable in phenomena—everything further is to be swept out of science, which thus becomes a body of absolutely certain truth about the doings of the physical world." E. A. Burtt, *The Metaphysical Foundations of Modern Physical Science*, N.Y., 1925, p. 223.

all permanent being."[5] In No. 50 of the same series he repeats the thesis and gives it a theistic turn: "In how many respects the very Being of Created things depends on Laws, or stated methods, fixed by God, of events following one another."[6] The theistic interpretation is also explicitly stated in the early paper, *Of Atoms,* Prop. 2, Corol. 12: "Motion . . . is by Divine Power communicating the resistance, according to certain conditions, which we call 'the Laws of Motion'. How truly then is it, that, 'In Him we live, and move, and have our being'." and further in Corol. 15: "Hence we see what are those, which we call *Laws of Nature,* in bodies, *viz.* the stated methods of God's acting with respect to bodies."[7] In No. 13 of "Notes on the Mind"[8] "Law of Nature" and "Constitution of God" are used as synonyms. And this conception of nature as a divine constitution is found in Edwards's mature theological essay on Original Sin. In answer to the question how Adam's posterity can be identified with Adam and so be held guilty on account of Adam's sin Edwards replies that identity in time between Adam and his posterity is no more a difficulty than identity in space between head and trunk of a tree or of a man—in both cases it is by a divine "constitution". "In this sense, the whole course of nature, with all that belongs to it, all its laws and methods . . . is an arbitrary constitution."[9]

The universal interconnection of things and events, which Edwards affirms and illustrates, is a correlate of nature conceived as a system of law. In the paper, *Of Being,* which is probably the earliest among Edwards's metaphysical writings, this interconnection is referred to: "Perhaps there is not one leaf of a tree nor Spire of Grass but what has effects All over the universe and will have to the End of Eternity."[10] It is illustrated at length in No. 40 of Notes on the Mind:

> Let there be supposed a Leaden Globe of a mile in diameter, to be moving in a right line, with the swiftness of a cannon ball, in the Infinite Void, and let it pass by a very small Atom, supposed to be at rest. This Atom will somewhat retard this Leaden Globe in its motion, though at first, and perhaps for many ages, the difference is altogether insensible. For if the motion is made so much slower, that in a million of years it

[5] *Works* (Dwight ed. N.Y. 1829) I 667.
[6] *Ibid.*
[7] *Works* (Dwight) I 713f.
[8] *Works,* Ed. N.Y. 1844, II 490.
[9] *Works* (Dwight) I 673.
[10] *Works* (Dwight) I 707.

> shall have moved one inch less than it would have done otherwise, in a million million it will have moved a million inches less. So now the least Atom, by its existence or motion, causes an alteration, more or less, in every other Atom in the Universe. . . . The case is the same as to Acceleration; and so as to Diversion, or varying the direction of the motion.[11]

The last sentence in the quotation seems to refer to Newton's second law. The facts as to Edwards's acquaintance with Newton's *Opticks* and *Principia* will be considered at a later point in the discussion.

The influence of Newton's discoveries in color may also be appropriately noticed at this point, inasmuch as it appears both in connection with Edwards's idealistic line of thought and in his physical analyses. Edwards evidently became acquainted with these discoveries very early, for his youthful explanation of the rainbow, he thinks, "will be satisfactory to Anybody If they Are fully satisfied Of Sr Isaac Newton's Different Reflexibility and Refrangibility of the Rays of light".[12] In the essay *Of Being*, written probably when Edwards was an undergraduate in Yale College, the young metaphysician seeks to prove that nothing has any existence but in consciousness. True, we imagine things as existing when no one knows of them. But what properties could such things have? Suppose the creation deprived of every ray of light; in such case the universe would be immediately deprived of all its colors. There would be no visible distinction between the universe and the rest of the incomprehensible void. The bearing of this upon the idealistic argument is more clearly brought out in No. 27 of Notes on the Mind. "What idea is that which we call by the name of body? I find Colour has the chief share in it." "It is now agreed by every knowing philosopher that Colours are not really in the things, no more than Pain in a needle; but strictly no where else but in the mind."[13]

Of course Edwards would read in Locke that color is a secondary quality, and that "the ideas produced in us by these secondary qualities have no resemblance of them at all". But Locke thought and wrote of secondary qualities as "produced by the operation

[11] *Works* (Dwight) I 672.

[12] E. C. Smyth, *Proceedings of the Antiquarian Society*, N. S. Vol. X, 237-47; "The Rainbow" is reprinted in Faust and Johnson's *Jonathan Edwards*.

[13] *Works* (Dwight) I 668.

of insensible particles on our senses" and did not know what "rays of light" had disclosed to Newton and so to Edwards.

II

We come to what I have called a second argument for the existence of God, an argument which deals with Newtonian conceptions. The start is from an analysis of bodies that might be found in Locke, namely, that solidity is the "idea essential to body", and that solidity is made known through resistance. Edwards sets himself the problem of explaining solidity and resistance. What resists? Can resisting be regarded as a merely passive condition? If not, what kind of active force or agency is required? Three somewhat different solutions are explored, none of which introduces psychological considerations such as enter into the 'idealistic' argument.

What was apparently Edwards's first solution to the problem of solidity is found in the paper entitled *Of Atoms and of Perfectly Solid Bodies* which Professor Smyth regarded as belonging to the earlier of the "Notes on Natural Science". Even in the earliest metaphysical essay, *Of Being,* in the course of his idealistic argument to which I have referred, Edwards had hinted at an explanation of solidity which would clear up any lingering doubts. "This will be Abundantly Clearer to one after having Read what I have further to say of solidity &c." The exposition in *Of Atoms* seems to offer what was promised, although it is not connected with the same type of idealistic conclusion. The paper *Of Atoms* opens in Euclid-Newton style: "Proposition I. All bodies whatsoever, except Atoms themselves, must, of absolute necessity, be composed of Atoms, or of bodies that are indiscerp[t]ible, that cannot be made less, or whose parts cannot, by any finite power, be separated one from another." For if such a perfect solid could be separated or broken, it can be shown that this process continued would involve ultimate annihilation. Further, two or more such perfectly solid atoms, if they should touch "by surfaces" and not merely by certain points, would "thereby become one and the same atom, or perfectly solid". Solidity, indivisibility, and resisting to be annihilated, are the same thing. Solidity is then the "persevering to be, of a body, or to speak plainly, of the *being* of it".

And since no finite power can divide or destroy such solid atoms, "It must needs be an Infinite power which keeps the parts of atoms together." "We have already as much as proved that it is God himself, or the immediate exercise of his power which keeps the parts of atoms together; for it is self-evident that barely two atoms being together, and that alone, is no power at all; . . . it follows that the constant exertion of the Infinite power of God is necessary to preserve bodies in being. Hence an incontestable argument for the being of a God." The certain "unknown substance" which has been supposed by philosophers to stand underneath and keep up solidity is nothing at all distinct from solidity itself, or if anything else is "nothing but the Deity, acting in that particular manner".

How did it happen that young Edwards hit upon atoms, and the consequences of their touching each other more or less closely as a promising beginning for his projected work on Natural Science and as a line of proof for the existence of God? Although the evidence in the case of this first solution of the problem of solidity is perhaps not as decisive as it is in the case of the second solution which we shall consider later, it seems to me that the suggestion which set Edwards on this line of thought came from Newton's *Opticks*. The passage which contains Newton's discussion of atoms and the consequences of their "touching" more or less closely, their indivisibility, and their resistance to any ordinary power exerted to break or separate, is found in Question 31 following Book Three. The phrasing, though not identical with that of Edwards, has close resemblances: The question begins: "Have not the small Particles of Bodies certain Powers, Virtues, or Forces, by which they act at a distance, not only upon the Rays of Light . . . but also upon one another?" Such attractive powers would be analogous to the attractions of Gravity, Magnetism, and Electricity between bodies. "The Parts of all homogeneal bodies which fully touch one another stick together very strongly." Even compound bodies, though porous, and consisting of parts only laid together are some of them very hard; simple particles with no pores must be much harder. Experiments with water rising between two plates of glass disclose remarkable power of attraction. Then, adventuring into the realm of "hypotheses" Newton continues:

> It seems probable to me, that God in the Beginning form'd Matter in solid, massy, hard, impenetrable, moveable Particles, of such Sizes and Figures, and with such other Properties, and in such Proportion to Space, as most conduced to the End for which he form'd them; and that these primitive Particles being Solids, are incomparably harder than any porous Bodies compounded of them; even so very hard, as never to wear or break in pieces; no ordinary Power being able to divide what God himself made one in the first Creation.[14]

It will be noted that Newton and Edwards agree, not only in the general position that all bodies are composed of solid particles or atoms, but also in distinguishing between solid particles in which all parts touch one another, and compounds in which parts touch only in certain points. Both affirm that atoms are indivisible and indestructible. Newton explains this indivisibility on the ground of "no ordinary Power being able to divide what God himself made one in the first creation". Edwards, with only slightly different wording argues "it must needs be an Infinite power which keeps the parts of atoms together . . . for it must be infinite power, or bigger than any finite, which resists all finite power how big soever". They differ on one point. Newton, cautious, is not prepared to deny that the world "being once form'd, it may continue by those Laws of Nature for many Ages". Edwards believes himself to have demonstrated that "the constant exercise of the Infinite power of God is necessary to preserve bodies in being".

There seems little, if any, room for doubt that Edwards had access to both the *Opticks* and the *Principia* at the time when he wrote the Notes on Natural Science. As already noted, he had referred in his early paper on the Rainbow to Newton's "Reflexibility and Refrangibility of the Rays of light". In 1714 Jeremiah Dummer sent a collection of books to the Yale College Library.[15] The collection included as gifts from "Sr. Isaac Newton", the *Principia* (2d Ed.) and *Optice* (Latin translation by Samuel Clarke, 1706). Question 31, from which I have quoted, was not in the first English edition of the *Opticks* (1704), but according to Horsley's footnotes in his edition of the *Opera* (1779-85) the

[14] *Opticks* (Reprint, 1931), 400.

[15] The list of books in the Dummer collection has recently been published in *Papers in Honor of Andrew Keough*, New Haven, 1938. See article by A. S. Pratt, pp. 7-33, and List by Bryant and Patterson, p. 464.

passage quoted appeared in Clarke's version of 1706 and in the second English edition of 1717. In Edwards's Catalogue of Books we find on page 1, "Sr. Isaac Newton, Principia and Optick" listed and crossed, but this has no date. As he wrote "Optick" it seems likely that he read the English edition. And from the eagerness with which he noted in his Catalogue books bearing on Newton's work it is at least not unlikely that he secured a copy of the second English edition. The paper on the Atom could scarcely have been written before 1718 or 1719.

Whatever doubt may attach to Edwards's dependence upon Newton's *Opticks* for the speculation as to atoms just considered, there can be no doubt as to the influence of both the *Opticks* and the *Principia* upon Edwards when he was planning his topics for his book on natural science. Under "Things to be Considered or Written Fully About" he set down a long list of ambitious astronomical and metaphysical tasks, *e.g.*, "To prove the Universe or Starry World, one vast spheroid", "To write concerning the distance of the sun by observation of the enlightened part of the Moon, when exactly in quadrature", "To find out a thousand things by due observation of the Spheroid of the Universe". Newton is mentioned in two numbers, Hobbes in one. Our special interest is in Nos. 20-23 in which the solution of the problem of solidity is declared to be Gravity.[16]

Number 20, Second Series, attacks again the problem of "two atoms touching by surfaces" which in the paper on The Atom had been answered by recourse to the direct and infinite power of God. The answer is now sought in gravity. Such atoms do "tend with infinite force of quantity to adhere together". But he undertakes to demonstrate that under the conditions named the attraction of gravity between the atoms so touching will be infinite. Number 21 adduces an experimental proof that adhesion is due to gravity, "That the adhesion of bodies arises from Gravity, proved from the adhesion of two polished marbles, in the exhausted receiver". Number 22 contains the explicit declaration, "Solidity is gravity; so that, in some sense, the Essence of bodies is Gravity—and to show how the bare being of body, without supposing harmonious being, necessarily infers Gravity, and to observe the

[16] *Works* (Dwight) I 723.

folly of seeking a mechanical cause of Gravity". Number 23 presents the full argument:

> Because it is universally allowed, that Gravity depends immediately on the Divine influence, and because it may be proved that Solidity and Gravity are in a good sense the same, and resolvable into each other, and because Solidity has been proved to be the very *being* of a body; therefore, we may infallibly conclude that the very being, and the manner of being, and the whole, of bodies depends immediately on the Divine Being.—To show how that, if Gravity should be withdrawn, the whole Universe would in a moment vanish into nothing; so that not only the well-being of the world depends on it, but the very being.

Attention is arrested by the opening sentence of this quotation. On what did Edwards base his confident statement, "it is universally allowed that Gravity depends immediately on the Divine influence"? We recall Newton's own cautious reserve:

> But hitherto I have not been able to discover the cause of those properties of gravity from phenomena, and I frame no hypotheses; for whatever is not deduced from the phenomena is to be called a hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy.[17]

Nevertheless Newton in the same Scholium had declared that though planets

> may indeed continue in their orbits by the mere laws of gravity, yet they could by no means have at first derived the regular position of the orbits themselves by those laws . . . it is not to be conceived that mere mechanical causes could give birth to so many regular motions. . . . This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and wisdom of an intelligent and powerful being.

The *Opticks* expressed the same conviction. Cotes, in the Preface to the second edition of the *Principia,* had faced the charge that gravity was an occult quality because no cause of it had been discovered. Gravity, he affirmed, is the "most simple cause" of the phenomena of celestial motion. "When we arrive at the most simple cause we can go no farther. Therefore no mechanical account or explanation of the most simple cause is to be expected or given." Richard Bentley, in the Boyle Lectures of 1692, had indeed declared explicitly that the demonstrated presence of a power of gravity was "a new and invincible argument for the

[17] *Principia,* Book III, Scholium.

being of God, being a direct and positive proof that an immaterial living mind doth uniform and actuate the dead matter, and support the frame of the world". But there is no direct evidence that Edwards had access to Bentley. Bentley had included several of his works in the Dummer collection, but not the Boyle Lectures. However, Whewell is authority for the following statement which indicates that Edwards had support for his claim: "The Newtonians repelled the charge of dealing in occult causes; and referring gravity to the will of the Deity as the First Cause, assumed a superiority over those whose philosophy rested in second causes."[18]

Another sentence, this time from the quotation from No. 22, deserves comment because of its probable reference to Newton: "to show how the bare being of body, without supposing the harmonious being, necessarily infers gravity". The same thought is repeated in the last sentence of the quotation from No. 23: "Not only the well-being of the world depends on it [gravity] but the very being." Newton had viewed the harmonious solar system as moving according to the laws of gravity, and as set in motion by divine wisdom and power. Edwards sees the direct agency of God in sustaining the very being of the world through the action of gravity.

Apparently, Edwards did not remain content with this solution of the problem of solidity by means of gravity. In No. 61 of the Notes on the Mind, entitled Substance,[19] instead of identifying solidity with gravity, he wrote, "Solidity or impenetrability is as much Action, or the immediate result of Action, as Gravity"; and in the following paragraph, still more explicitly, "And why is it not every whit as reasonable, that we should attribute this action or effect, to the influence of some Agent, as that other action or effect which we call Gravity; which is likewise derived from our observation of the beginning and ceasing of motion, according to a certain method?" This No. 61 is stated by Dwight to have been "written probably at a somewhat later period of life". The argument for divine agency is worked out in greater detail than in the notes previously cited, but the main difference is that resistance or solidity is now attributed to an agency like gravity,

[18] *History of the Inductive Sciences* II 204, Ed. of 1847.
[19] *Works* (Dwight) I 674.

instead of to gravity itself. The first step in the reasoning is interesting in view of modern theories of intra-atomic activity which have replaced older conceptions of an "inert substance".

Premising, as before, that the essence of body is solidity or resistance, the thesis is that "solidity or Impenetrability is as much Action, or the immediate result of Action, as Gravity". The proof offered is in outline as follows: "It is as clear and evident, that action is a requisite to stop a body, that is already in motion, as in order to set bodies a moving, that are at perfect rest. . . . In either case there is nothing observed but the beginning, increasing, directing, diminishing, and ceasing of motion." We reason that there is a "something" there, but to talk of a "something" or a "substance" as a reason "is no reason at all". When "we see something suspended in the air, set to move with violence toward the earth" we do not rest with "attributing this beginning of motion to the nature of the something that is there"; we speak of gravity, an active influence. "Why be content, when we see this motion suddenly cease, to attribute the stopping or resistance to a vague Something?"

For the concluding step Edwards apparently relies on the reader's assent to what he had previously asserted as to gravity. "It is universally allowed, that Gravity depends immediately on the Divine influence." He argues that the Something which stops bodies in motion is as much a Being as that which causes them to fall, and continues, "This Being, acting altogether of itself, producing new effects, that are perfectly arbitrary, and that are no way necessary of themselves; must be Intelligent and Voluntary."

If it be objected that we actually see colored bodies and feel them resisting us the answer is that we know that light and colors are not "there", and that our only ground for assuming anything solid to be there is that certain parts of space resist. If we suppose there is something else there than what we observe, it is "only by way of Inference". Suppose, for the moment, the resisting parts of space were not colored, and that all we could possibly observe were only and merely resistance,

> If we, when walking upon the face of the Earth, were stopped at certain limits, and could not possibly enter into such a part of Space, nor make any body enter into it; and we could observe no other difference, no

> way, nor at any time, between that and other parts of clear space; should not we be ready to say, What is it stops us; What is it hinders all entrance into that place?

It is then by a process of inference that we seek a cause for the properties of bodies—for their continuance, as well as for their first existence. "All agree that there is Something that is there, and upholds these properties. And it is most true, there undoubtedly is; but men are wont to content themselves in saying, that it is Something; but that Something is He 'by whom all things consist'."

In this seemingly more mature argument than that which identified resistance directly with gravity Edwards was more in accord with Newton, who had spoken of an "active principle", analogous to such other active principles as gravity, electricity, etc. But of course, in his theistic argument Edwards went beyond the limits which the scientist set for himself. This theistic argument gives the impression of having been Edwards's own.

In presenting the foregoing examples of Newton's influence upon Edwards I have spoken of a line of argument distinct from the 'idealistic' pattern. And to common sense it might even seem that the two patterns and their underlying conceptions belonged to two incompatible worlds. If "all material existence is only idea", and if "the world, that is, the material universe, exists nowhere but in the mind", how can we appropriately discuss atoms, gravitation, and the effects produced in a million million years by an atom upon the course and velocity of a speeding leaden globe? Nevertheless, we should seriously mistake Edwards if we should suppose that to him there was any conflict between the two lines of thought, or between the two worlds which they presupposed. "When we say that the world, *i.e.*, the material Universe exists no where but in the mind", and that "that which we call *place* is an idea too",

> We would not therefore be understood to deny, that things are where they seem to be. For the principles we lay down, if they are narrowly looked into, do not infer that. Nor will it be found that they at all make void Natural Philosophy, or the science of the Causes or Reasons of corporeal changes; For to find out the reasons of things in Natural Philosophy, is only to find out the proportion of God's acting. And the

> case is the same, as to such proportions, whether we suppose the World, only mental, in our sense, or no.
>
> Though we suppose, that the existence of the whole material Universe is absolutely dependent on Idea, yet we may speak in the old way, and as properly, and truly as ever. God, in the beginning, created such a certain number of Atoms, of such a determinate bulk and figure, which they yet maintain and always will, and gave them such a motion, of such a direction, and of such a degree of velocity; from whence arise all the Natural changes in the Universe, forever, in a continued series. Yet, perhaps all this does not exist anywhere perfectly, but in the Divine Mind.[20]

And also, in Note 22 of Things to be Considered, Second Series, under Notes on Natural Science, after commenting on the "folly of seeking a natural cause of Gravity" Edwards added,

> But to observe that this has as much a mechanical cause as anything in the world, and is as philosophically to be solved, and ought no more to be attributed to the immediate operation of God than everything else which indeed arises from it.[21]

Perhaps the clearest statement of the relation between the world as existent in idea and the world of natural science, as Edwards conceived this relation, is found in No. 13 of Notes on the Mind. He points out that the world of extension, motion, and figure is a world of colored space, and hence that a world without color would not be like the world we know. But "Colour is only in the mind". Therefore, he argues, "there can be nothing like those things we call Bodies, out of the mind". For explanation we must relate both worlds in ultimate being—in Edwards's thought, ultimate being must be God.

> And, indeed, the secret lies here: That which truly is the Substance of all bodies, is the infinitely exact, and precise, and perfectly stable Idea, in God's mind, together with his stable Will that the same shall be gradually communicated to us, and to other minds, according to certain fixed and exact established Methods and Laws.[22]

Newton's world of atoms and forces and Locke's world of ideas are thus united in the Idea and Will of deity. The science and philosophy of the two centuries since Edwards have not been content with so swift a solution. Both worlds are more complex

[20] The Mind, 34. *Works* (Dwight) I 669.
[21] *Works* (Dwight) 724.
[22] *Works* (Dwight) 674.

than Locke and Newton conceived them. Yet one might fancy Edwards remarking, if he could look in on us, "You prefer to substitute 'reality' as a more neutral term, for 'deity'. But I do not see that you have as yet succeeded in so conceiving reality as to solve my problem: How so to conceive reality as to provide both for the world which the scientist discovers and for the intelligence which discovers such a world."

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THE PERSONAL IDEALISM OF GEORGE HOLMES HOWISON

THE subject of the present paper is Personal Idealism, which is here put forward as that interpretation of reality which boldly takes the inevitable last step in the development of Absolute Idealism. Toward the end of the last century a small group of philosophers, and they among the keenest of intellect and the most thorough in scholarship, reached almost simultaneously, each by following a different pathway, conclusions on the fundamental issues of philosophy which are strikingly similar, and warrant the characterization of all of them as personal idealists. The most significant and influential names in this group are James Ward, J. E. McTaggart, Rudolf Eucken, Thomas Davidson, and G. H. Howison. I shall take Professor Howison as the representative of this philosophy in spite of the fact that his published works are fewer by far than those of any one of the others who have been named. Possibly I am allowing myself to be somewhat influenced in this matter by personal considerations. I have always looked up to Howison with reverence and with deep affection as to my more than father, and the attempt to describe the central thoughts of his philosophy is very definitely a labor of love. Yet I feel certain that the objective reasons for making this choice are more than adequate. Professor Howison was the first to use the term "Personal Idealism" as the most adequate characterization of this philosophy; he has given a courageous and forthright statement of the truly stupendous conclusions to which his reasoning has guided him, without subterfuge, evasion, or apology; he has presented this philosophy in its larger outlines with exceptional clarity; he has shown how this type of idealism would bridge the gaps which in other forms of idealism have only too often proved stumbling blocks, especially the gaps between theoretical and practical reason, and between the knower and the sense world, while at the same time his thorough knowledge of mathematics and logic and of the physical sciences, has insured due recognition of the truth which is implicit in what may be called the common-sense view of the physical order, upon which realism lays such stress, which ascribes to that order "independent" existence,—a phrase,

it must be added, that poses a problem rather than supplies a solution; he has moreover, made this philosophy not a dead but a living thing, a view that casts light on the problems that are of deepest concern to man, and that brings into harmoony those beliefs which are implied in living a life that is humanly worth while; and finally, he has clearly indicated the tasks that remain to be accomplished ere this philosophy can be rounded into a whole, tasks that but await the coming of a mind great enough to undertake them.

The philosophy of Personal Idealism which Professor Howison held is one that is implied in a series of essays which he published under the title *The Limits of Evolution*. In the introduction to that volume he has given a summary statement which gives the principles that, taken together, define and defend the philosophical point of view from which the essays are written. It undoubtedly gives the skeleton of the argument by which he would show that the view presented is not merely a possible interpretation of experience, but that it is the one interpretation that is logically compelling. At the same time it clearly points to the necessity of a further elaboration in a systematic presentation—a task which Professor Howison proposed for himself, but which he died without accomplishing. Although he lectured with ease, and the fitting words seemed always at his command, he wrote with great difficulty—a difficulty that was largely due to his scrupulous demands upon himself for strict accuracy. But I suspect that there were other reasons for his failure to accomplish that task. I think that he felt as Plato must have felt when he declared, as recorded in one of the Epistles, "There is not, and never will be any treatise by Plato on the ideas." He firmly believed with Socrates that there was a very real sense in which philosophy teaches nothing, its business being rather to awaken and stimulate minds and help them to self-expression. While he was firmly convinced of the truth of his philosophy, and eagerly hoped that others might see as he did, and was greatly disappointed that none of his students quite measured up to his expectations, he was loath even to make the attempt to reduce that philosophy to a few phrases, which one might take away in the mistaken notion that one was grasping their truth; it would not do to make it too easy. In all the years of my

association with him I never heard Professor Howison give any lecture specifically on his own philosophy. Ideas were the tools of thinking rather than the objects of thought; and a philosophy, as a system of ideas, was something to work with rather than to talk about. To be understood, it must be caught in action—taken alive. Furthermore, any comprehensive statement of his own philosophy must do full justice to the great insights of other thinkers, all of whom had found aspects of truth that must be included in any complete picture. The history of philosophy was itself philosophy writ large, philosophy taking its time, and giving to each partial vision full and adequate consideration. Any book that attempted to do this would easily get out of hand.

Ethical considerations were always dominant in Howison's thinking. He was from the first primarily interested in the individual, the person. It was evident that materialism, and every disguised form of materialism, positivistic or sensationalistic, which regarded man as simply a part of nature and a product of natural forces, left no room for ethical freedom and individual responsibility. Not only are all moral values put in jeopardy, but truth itself loses its meaning, for the individual is a mere transient expression of a moment in the great world process, and what passes for truth is merely a name for the way in which this product of nature reacts to its environment, merely the inevitable tipping of the scales in one direction or another, as determined by natural forces. For some time, however, Howison was a fairly close follower of Hegel, interpreted very largely as Green interpreted him, Hegelianism of the right wing. But he found it increasingly difficult, starting with the Absolute, to find room for the genuine reality of the individual self; yet, failing this, there could be no individual freedom, no moral order.

He reached his own distinctive philosophy by definitely breaking with the idealistic monism of Hegel, and starting from the Many instead of the One. One may argue, as Royce does, that our human ignorance, once confessed to be real, brings with it the reality of an Absolute Wisdom, for nothing less than that can declare the ignorance real. Or one may argue that our knowledge which constitutes science, if it be real, also brings with it the reality of an Absolute Experience, since nothing less than that can determine

that one experience when compared with another is *really* fallacious; so that, if the verdict of science is *real,* then an absolute experience is real. But, in doing so, one is making an unwarranted leap from the individual inquirer or knower or doubter, to an Absolute supposed to live in and through the finite individual. Whose omniscience is it, Howison asks, that judges the ignorance to be real? Whose absolute experience pronounces the less organized experience to be really fallacious? Am I not the thinker of that argument? Is it not I who am the authority for the connection between the reality of ignorance, or of the fallacious experience on the one hand, and the reality of the implicated omniscience on the other? Is not the logical conclusion simply this, that real infinity lies implicit in man's seeming finitude?

By the arguments of idealism we are thus inevitably led to the conclusion that the Absolute must be regarded as a community rather than as a single self. Persons are the central and ultimate realities; their being is grounded in the eternal order; they are creative, self-active, self-determining, and therefore free.

These many persons may be said to constitute the City of God where all the members have the equality belonging to their common aim of fulfilling their one rational ideal; and God, the fulfilled Type of every mind, the living Bond of their union, reigns in it, not by the exercise of power, but solely by light; not by authority, but by reason; not by efficient but by final causation—that is, simply by being the impersonated Ideal of every mind.

The members of this Eternal Republic have no origin but their purely logical one of reference to each other, including thus their primary reference to God. That is, literally, they have no origin in time whatever. They simply *are,* and together constitute the eternal order. Still they exist only in and through their mutual thought correlation, and out of it would be non-existent. But through their thought reciprocity with each other, God being included in the circle, they are the ground of all literally originated, all temporal and spatial existence.

Hence, relatively to the natural world, they are free, in the sense of being in control of it. Relatively to God also, and to each other, all minds other than God are free, in the still higher sense that nothing but their own light and conviction determines their actions

toward each other or toward God. This freedom belongs to every one of them in their total or eternal reality, however burdened and obscured it may be in the world of their temporal experience, and its intrinsic tendency must be to fulfill itself in this external world also.

This world of spirits held in union by reason is the unmoved One that moves all things—not the solitary God, but the whole world of spirits including God, and united through recognition of Him. Its oneness is not that of a single inflexible unit, leaving no room for freedom in the many, but is the oneness of uniting harmony, of spontaneous co-operation, in which every member, from inner initiative, from native contemplation of the same Ideal, joins in moving all things changeable toward the common goal. And this movement of things changeable toward the goal of a common Ideal is what we mean by the process of evolution. The world of spirits, as the ground of it, can therefore never be the product of evolution, nor in any way subject to evolution; except that in the case of minds other than God, who have their differentiation from Him in a side of their being which is in one aspect contradictory of their Ideal, this sense world of theirs is by its very nature, in its conjunction with their total nature, under the law of return toward the essential Ideal. Evolution must therefore reign universally in the world of sense, but beyond this world of phenomena it cannot go. Every mind has an eternal reality that did not arise out of change and that it cannot by change pass away.

These conceptions carry with them a profound change in our habitual notions of the creative office of God. Creation, so far as it can be an office of God toward other spirits, is not an event, not an occurrence dated at some instant in the life of God, after the lapse of aeons of his solitary being. God has no being subject to time such as we have; nor is the fundamental relation which minds bear to him a temporal relation. So far as it concerns minds, creation must simply mean the eternal fact that God is a complete moral agent, that his essence is just a perfect conscience—the immutable recognition of the world of spirits as having each a reality as inexpugnable as his own, as sacred as his own, with rights to be revered; supremely, the right of self-direction from personal conviction. Real creation means such an eternal dependence of other

souls upon God that the non-existence of God would involve the non-existence of all souls, while his existence is the essential supplementing Reality that raises them to reality; without Him, they would be but void names and bare possibilities.

The key to this philosophy is found in its doctrine concerning the system of causation. It reduces the Efficient Cause from the supreme place in philosophy which it has hitherto held, and gives the highest, the organizing place, to Final Cause instead. Final Cause becomes, not merely the guiding and regulative, but actually the grounding and constitutive principle of real existence. All other types of causation are its derivatives, as well as the objects of its systematizing control. In this philosophy the Ideal is made central and determining, and therefore real, and the measure of all other reeality. And so this philosophy might with accuracy be named Absolute Idealism, did not the title Personal express its nature still better.

The above summary statement of the philosophy underlying the essays published in the volume entitled *The Limits of Evolution,* and providing the thread of unity that runs through them, has been given largely in Professor Howison's own words. James Ward, upon first reading the book, said that it "rather took his breath away". He told Howison that the philosophy therein presented was "original enough in all conscience; if only it were true, it would be grand". But as the years went on he found it more and more illuminating, and he confesses to the important influence which it had upon his own thinking. As he is preparing his Gifford Lectures on *The Realm of Ends* he has Howison's book frequently upon his desk. Later, in preparation for other lectures, he has it continually on his desk and freely acknowledges his indebtedness to it. "It has encouraged me", he writes, "to attempt what I once thought hopeless—to approach Theism through Pluralism." And in a later letter he states, "However pronounced my previous Pluralism may have been, it is certainly true that it was your book that emboldened me to try to work out Pluralism as fully as I could, and to start from the Many and not from the One." And still later he writes that his difficulties with the book have been "much more those of a disciple than those of an opponent".[1]

[1] This story is taken from Professor Stratton's Biographical Sketch con-

Now I think that this experience of Ward is typical. The first impression made by this philosophy is that it is breath-taking, that it is bold to the verge of audacity. But the more one lives with the view, the more one reflects upon it, the more clearly does it appear that once one has taken the first step in idealism one cannot stop short of the belief in the eternal reality of the individual, and in all that that implies.

For Howison, this philosophy is not only religious, it is also in complete accord with the fundamental insight of Christianity. There are, in fact, three positions which one can take with regard to the relation of reason and religion. The first is that they are antagonistic; that reason is the organ of the natural man, that it knows no world but that of sense, and must preserve silence as the invisible world. The Tertullians of all ages have maintained this position in order to protect religion from science; the Baconians, in order to protect science from religion. The second position, which marks a great advance, finds perhaps its best expression in St. Thomas. There is no intrinsic antagonism, but religion supplements and transcends reason. When reason has reached the end of its tether, faith extends man's reach, and enlarges his vision. The third position, which is that of Howison, holds that religion and reason are in an intrinsic harmony, which is in reality the harmony of reason with itself. Reason is not confined to mastery of the sense world and the goods of that world only, but covers all the range of being, and founds and rules the world eternal. It is not merely natural, it is also spiritual; and so it is itself, when it comes to itself, the true divine revelation. By reason, however, one must here understand the human powers of insight in their completest scope, and not merely discursive 'reasoning', or consistent and consecutive logical syllogizing, or 'explaining 'and 'proving' in any mechanical sense.

Now the teaching of Christ was in truth revolutionary in religion. The doctrine had indeed been foreshadowed in the work of the philosophers, especially in Socrates and Plato, but as a more or less distant thought. With Christ, however, it was an ever-present

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tained in the volume entitled: *George Holmes Howison, Philosopher and Teacher*, by George M. Stratton and John W. Buckham. The University of California Press.

perception. There is in him a complete personal identification with the doctrine, and thus a new temper and tone of life before unrealized. He called himself "The Son of God" thereby making himself the equal of God. So said the Pharisees, and they were shocked, and accounted it as blasphemy. But indeed he went much further; he declared of the Eternal Word, that "to as many as believed on His name He gave the power to become Sons of God". He broke away completely from the magisterial and monarchical conception of God and substituted in its place the conception of God as a friend and moral father, who calls every human being, every spirit, to the equality of sharing in that fullness of spiritual powers which constitutes the divine glory. God is love, but love that is completely love and therefore is not condescending or pitying, not a love that hands out favors, but a love that recognizes and reverences the thinking freedom of the mind beloved, and therefore renounces all might, coercion and constraint.

It would be interesting to consider the way in which this philosophy was used by Professor Howison to throw light on special problems which are of deep human concern. But I must now face the problem which has been lurking in the background of my discussion. Granting that all forms of Monism and of Materialism in destroying freedom destroy at the same time those values which, during the course of civilization, men have come to prize most—moral, religious, and aesthetic values—and that, in the end, they rob even truth itself of its meaning, this may indeed be a sufficient ground for the rejection of those philosophies. But even if it be true that by taking our start with the Many, with Pluralistic or Personal Idealism, we can avoid those pitfalls, is this a sufficient ground for the acceptance of that philosophy? Now I think that the average man of intelligence, if at all given to reflection, and yet not an expert in the subtleties of philosophy, does indeed judge a philosophy by its success in bringing into harmony the fundamental beliefs which are implicit in living the life which he regards as supremely worth while, and is little interested in or influenced by demonstrations, rigorous and exact after the manner of mathematics, and is even suspicious of the attempt to supply such demonstration. But the philosopher must ask, does this philosophy, in avoiding certain evils of other forms of idealism, involve

difficulties of its own equally grave; and, in any case, is the doctrine true? Where are the proofs?

In approaching this question it will help if we note first the relation of this philosophy to the great historic philosophies. It makes heavy drafts upon them all, especially upon the philosophies of Socrates, Plato, Aristotle, Berkeley, Leibniz, Hegel, and Kant, and most of all upon Aristotle and Kant. One might almost say that it takes directly from Aristotle most of the concepts which it uses in the interpretation of Kant, and in the correction and extension of the Kantian insight, which is what constitutes Howison's chief claim to originality.

There are two theses in this philosophy upon which all the rest depend, so that the whole problem centers in the possibility of establishing their proof. The first is the general thesis of Idealism expressed in Kantian terms: "All existence is either (1) the existence of *minds* or (2) the existence of the items and *order of their experience;* all the existences known as 'material' consisting in certain of these experiences, with an order organised by the self-active forms of consciousness that in their unity constitute the substantial being of a mind, in distinction from its phenomenal life." And the second is: "Time and Space, and all that both 'contain', owe their entire existence to the essential correlation and coexistence of minds. This coexistence is not to be thought of as either their simultaneity or their contiguity. It is not at all spatial, nor temporal, but must be regarded as simply *their logical implication of each other in the self-defining consciousness of each.* And this recognition of each other as all alike self-determining, renders *their coexistence a moral order.*"

The most persistent critics of the general theory of Idealism since the turn of the twentieth century have been the so-called Realists. They have almost nothing in common except their hostility to Idealism. They are against the Idealists, but what they are *for* it is hard to discover. Idealism has no quarrel with Realism, rightly understood, but only with Materialism and perhaps, but to a less extent, with Scepticism. Now the main ground of the opposition of the Realists to Idealism is its supposed subjectivism. And yet their answer to the Idealists is quite on a level with Dr. Johnson's reply to Berkeley by kicking a stone, or Diogenes's at-

tempt to answer Zeno by taking a walk. It is represented as a vindication of common sense. But when one hears one of the number, and one of the keenest, solemnly laying down as two of the propositions on which all Realists agree (1) that "some, at least, of the particulars of which we are conscious exist when we are not conscious of them", and (2) that "some, at least, of the essences or universals of which we are conscious subsist when we are not conscious of them", one rubs one's eyes and wonders: Where are these strange creatures? What philosopher has ever been so bereft of reason as to deny such obvious truths? There has never been, so far as I have been able to discover, any idealistic philosophy which has denied them, any which could properly be described as sheer "mentalism", although some religious sects have apparently succumbed to this illusion. And yet it is undoubtedly true that there have been Idealists, who, in developing their philosophies, have introduced considerations which, if taken by themselves and carried through to their logical conclusion, would force them into a denial of these patent truths of experience. This simply illustrates the difficulty which any philosopher experiences in making his meaning plain without inadvertently bringing into the argument certain ideas which are at variance with his fundamental insight. Once *convince* him that a statement he has made, or a position he has taken, logically and necessarily, if followed through, lands him in such absurdities, and you will shake his confidence in its truth.

Thus, for example, Berkeley virtually rubs out the distinction between space and time and thus seems to bring everything into the region of inner sense. Leibniz, by affirming the illusory character of extension and duration, would seem at the same time forced to the conclusion that nature itself is unreal. Both philosophers have their ways of escape from the apparent subjectivism implied in these views; subsequent philosophical reflection has found these ways inadequate, and has sought better ways, but without finding it necessary to reject their positive contributions to the interpretation of objective reality. Now every form of Idealism seeks to transcend the natural dualism of uncritical common sense, and is sooner or later forced to face the problem of the meaning of objectivity. What does it mean for a judgment, whether perceptive or reflective, to be objective? An essential part of Howison's theory

is its new doctrine of the nature of objectiveness, and this it grounds in the essentially social character of that self-defining consciousness in which it fixes the real existence of each personal being. Each is by its own self-certitude self-correlated with others so that its reality carries theirs. Thus this society of primarily objective beings constitutes the ultimate order of things-in-themselves, to borrow Kant's phrase, but better described as self-subsistent realities, and this order imparts a secondary objective character to all judgments that are organic in each and therefore indicative of community to all. To think objectively, to know, is tacitly to refer the 'necessity' of one's judgment to the universal society of minds as a standard, is to discern oneself as typical of a kind, and thus attain the certitude that the judgment is truly universal, because spontaneous in the nature of each as involving the nature of all. A person means a being who recognizes others and relates himself to them, and the objective judgment is the judgment that carries the weight of social logic, and the final test of any truth is that it conforms to this principle of universal social recognition.

We do not start with the isolated ego. There is no such thing; the self is from the very first conjunct. That is, one does not have on his hands any problem as to how one can reach beyond the self to other selves. No more does one have the problem of finding a way of escape from the "prison of the inner life", for in truth one is never in that prison, but is from the first on the object side as well as the subject side of the subject-object relation. The things that confront him, the physical facts, are not his alone, but ours. The thing, anything you please, is precisely what it is experienced and known as, and what is added in knowing—what except that my experience is lifted out of its apparent isolation, through the discovery of relations and connections and sequences that can be formulated as laws that obtain universally and inevitably. My experience is given its place in the single realm of experience which is identically the realm of experience of other minds, and if the laws discovered are true and hold universally, it is that realm of experience as known by the typical or universal mind. That is to say, this Idealism is as docile in its attitude toward the discoveries of science as any Realist could possibly be. It knows that nature

can only be conquered through obedience to her laws. Things are what they are independently; that is, they are not dependent upon, nor can their nature be affected by, any private feeling or desire; but at the same time they are dependent on the very principle of rationality which must be presupposed as the logical basis of every scientific generalization. There is, however, a purely subjective aspect of every experience, what we might call its feeling aspect, which is strictly unshareable. Man, as this finite individual, has, in fact, a dual nature; he is blessed with, and at the same time limited by, a body, and he is also a member of the eternal order and free, and possessed of infinite possibilities. He is, not only as regards his body, but also as regards his psychical life, when that is viewed as a mere succession of empirical psychical events, definitely the product of evolution; but as knower, he transcends all these limitations, and has his true being in the eternal order, and, for that very reason, is able to translate just his own experience into terms of universal experience, experience as identically the same for all other minds. The phenomenal psychical and the phenomenal physical are diverse aspects of the same finite self, but the physical has a characteristic which the psychical as such never has, and that is, that it is located, is spaced; and it is this difference that gives the physical order its peculiar objective character. The sequences of my inner life set in order by the *a priori* form of time, are all my own, but the space order is common to all. Time itself, if it is to be an objectively measurable duration, as it must be if I am to make dates, keep appointments, plan for the future, or definitely place historical events, must be tied in with the common world of physical fact, must be measured by motion in space, the running sand in the hour glass, the moving hands of a clock, or the motion of the heavenly bodies.

The world of physical fact, as my experienced world, is rich with color contributed by my own feeling values and my own appreciation of the so-called secondary qualities. Those secondary qualities are indeed actually out there in the object of experience as it is for me; they give for me its full experienced significance; and I must believe that they are also there in the object as it is for any being like myself, although I can never know precisely to what extent another's feeling values, his appreciations, are identically the

same as my own. If I could in all literalness feel your feelings we twain should be one. We are in this respect forever shut out from one another. That is the price we pay for individuality. To this extent each may be said to be his own world builder, or, perhaps it would be better to say, each is a unique manifestation of the unchangeable type of being that perfect rationality is.

Now physical science in interpreting nature, in trying to discover what it truly is, ignores all those private valuations, and interprets the facts, more and more as science progresses, in terms of mathematical and quantitative relations. The entities it discovers, quanta, atoms, electrons, protons, neutrons, positrons, or what not, have neither taste nor odor nor sound, nor any feeling value. They are terms representing mathematical and logical relations, and the bond that ties all nature together and makes it a continuous rational whole, the manifestation in the changing order of complete formal rationality, is the logical bond.

We have reached the conclusion then that persons or spirits are the only self-subsistent realities, the only Ends-in-themselves; and further that all finite spirits, that is to say, all spirits other than God, have a dual nature, have their being not only in an eternal order but also in a world of change and striving. Now these many individuals must in both respects, that is, with reference to their eternal being and also to their temporal being, be in relation to one another. It is at this point that Bradley makes short shrift with every form of monadology. The many, he says, must either be in relation to one another or not. If they are not, there is no occasion to believe in the Many. If they are, the relation will mean limitation, and this will force us to attempt to get behind the Many to an inclusive One. This, however, begs the whole question, for surely there are relations that are not limitations. The most obvious relation of that kind given meaning in human experience is that of friendship or love. McTaggart brings this out very clearly in one of his early papers, first published anonymously under the title, "Further Determinations of the Absolute".

But also in the relation of finite minds, as finite, to one another, in the world of time and process, there must be direct commerce between them, and in order that this may be possible there must be a meeting place in a completely shared experience, and this is what

the spatial order is. The happenings and events in that order must therefore be absolutely dependable, and there must be the universal reign of law, in order that such commerce may be possible. Such uniformity and necessity is also required in order that any finite individual may be able to make plans and carry them out.

There is universal and stable definiteness just because this universal self-defining implies universal reality, the living presence in all of one unchangeable type of being—the self-conscious intelligence; and this presented in all really possible forms or instances of its one abiding nature. That is, it must provide for all individual differences compatible with the mutual reality of all, must provide for that gradation of monads from the lowest increment over non-existence to the absolute realization of the Ideal Type. Consequently God must be included in the circle of spirits. Each defines himself, not only against his fellows, but also against the Supreme Instance, and so in terms of God, as the unchangeable ideal which is the indispensable standard upon which the reality of each is measured.

The argument offered in proof is one that goes back to Descartes and to his primal certainty—the impossibility of questioning the reality of the individual mind, since every effort to question it presupposes its truth and reality, but with this important addition that the individual mind must here be taken as a thinker, or a self, in reciprocal relation with the existence of other selves and as not thinkable in any other way. It is completed by showing that the doctrine of cognition *a priori* is true and real, and that the absolutely fundamental cognition of this sort is the self-defining consciousness of each mind, which exists just by being self-aware, and by that very fact aware of its correlation with a system of other minds. It is the ontological argument, but given in a new form; a necessary connection between ideas carries with it a like connection of the corresponding things. Now the idea of every self is inseparably connected with the idea of other self, and with the idea of God, and therefore if any self exists, God exists.

The essential form of spirit or person is the organic union of particular with universal, of its private self-activity in the recognition of itself with its public activity in the recognition of all others. Self-consciousness is therefore in the last resort a conscience, or the union of each spirit's self-recognition with the rec-

ognition of all. And thus we are led by the logic of the fundamental act of self-definition by any mind to the world of minds as the sole world of Ends presuppossed in all moral responsibility, and the barrier which Kant had set up between theoretical and practical reason is removed. In short, the principle of self-recognition as the condition of any and all knowledge turns out to be the first principle of morality or, more strictly, the first principle of morality becomes the first principle of knowledge, and is itself an act of knowledge, and not simply an act of faith. Objective knowledge and the intelligible objective certainty of the moral judgment get vindicated at once and together.

The form of this moral judgment is the categorical imperative—so act as to reverence humanity in yourself and your neighbor, or so act as to treat yourself and your neighbor always as ends in themselves, as persons, and never as things to be simply used up and cast away. This principle, if universally recognized, and lived up to by the coöperative effort of every soul in moving the sense world forward in the direction of the Ideal would give, not only a completely moral order, but also a completely intelligible order.

Upon this moral principle all the categories of theoretical reason depend. The having of a sense world is the condition of this cooperation. And therefore every person who lives in this world of striving must have his anchor down in the sense world, must have his *pou sto*, that is his body. A disembodied spirit, except in the case of God, is unthinkable. And we can now see why the sense forms *a priori* must be two and only two; the one, Time, that organizes the inner aspect of experience, that aspect which insures the privacy and thus the separate and independent life of the finite self; and the other Space, which organizes that aspect of experience which is immediately and directly accessible to all, and thus provides the medium for direct communication of mind with mind, and at the same time provides the field of operation for their joint endeavor. And inasmuch as the physical world, the spaced world, is the common field of objective experience and therefore present to each, it must also be organized by time, but here by time as measured by motion in the common spaced order.

Now experience from the first is complex. It is not just constituted out of sensations and impressions but is a complex in which sensations and impressions are organized and made to take form

and descriptive definiteness, and thus gain clear reality, by the *a priori* forms of self-active consciousness. It is true that our real experiences day by day and moment by moment are so intrinsically organized and defined that it does not at first occur to us that the principles which organize and define them, rendering them intelligible and consciously apprehensible, are and must be the spontaneous products of the minds' common action. But such, reflection shows to be the case. The system of the categories, that is the system of our several elements of consciousness *a priori,* is precisely what we mean by our unifying or enwholeing self, what we mean by having a soul and that this soul possesses real knowledge, that it has a hold upon eternal things. Kant's central thought, the free self-activity of the human reason *a priori,* Howison held to be of ultimate value and unperishable, but he also felt it needed to be amended and extended by showing that the categories of the understanding are from the first involved in the formation of empirical percepts, and that therefore we do not have any problem as to the applicability of the categories to sense percepts, that is, any problem of the deduction of the categories; further, that the categories are applicable to noumena as well as phenomena, which Kant had denied because of his mistaken notion that existence must be given in a presentation. Consequently Kant's paralogism of pure reason is a mere begging of the question.

In the common world of physical fact efficient causation rules universally. But efficient causation should be interpreted, not as power producing, but rather as transmissive causation, and as necessary connection. Between primary self-subsistent realities or persons efficient causality does not and cannot hold. If it did we should be caught in Bradley's dialectical trap. Such realities would then be subject to compulsion from without, and we should therefore be forced to seek a higher and inclusive unity. The only causality that can obtain between persons is causality with freedom, and the only causality with freedom is final cause, that is, the attraction of the Ideal.

The physical world, as organized by the categories of the understanding, is given unity and complete intelligibility; and the having of such a unified world is the condition of our sanity, to borrow Royce's phrase. If for any reason one is led to doubt one's sanity, the cure is, not to look within, but to lose oneself in the outer ob-

jective world and discover its unity, and in so doing recover the unity of self-consciousness. Similarly, in the moral order, the mutual recognition of the moral imperative is the condition of *its* unity and intelligibility; and the having of such a unified world of deeds is the condition of moral sanity. But there is this important difference. There is an inevitableness about the unitary world of nature which is not found in the moral order, and the reason is plain. The unity in the moral world is obtained by the free acceptance and affirmation of the universal Ideal of reason. Any individual refusing to do so plays the devil in the world of deeds. It is always possible for the individual to be sunk in sense, absorbed in the body, and thus to treat himself and his neighbors as things and not as persons. It is always possible to close one's eyes to the Ideal. It is then impossible to re-establish that unity of the moral order by force or compulsion, by setting up some form of mechanical social organization, some planned economy. Where persons are concerned, one can only plan successfully when one can predict human behavior, and the only way to predict such behavior with certainty is to control that behavior, and this is to do violence to the very spirit of morality. One must resort to persuasion rather than to compulsion, present the Ideal in its inherent attractiveness and make plain the folly and stupidity of resting content with anything less than devotion to it. Before the rebellious soul can be redeemed the significance of his action in pitting himself against the harmonious unity of the world of spirits must be brought home to him in his own experience of its folly. The first step in this recovery of moral sanity is to lose oneself in some form of active social service.

This rebelliousness of the individual, whether due to ignorance or willful blindness, is the real source of evil in the world.

This brings us face to face with the problem of the relation of mind and body. The physical world is a world of immutable law, and my body is definitely a part of that world and therefore equally subject to its law. Is not freedom then a delusion? Are we not forced to say, as Kant appears to do, that we are free in the noumenal but bound in the natural world? Yet freedom, if it is to carry any significance for us as human beings living in the world of striving, must be freedom that is effective in determining events in our common spaced and timed world. The first step toward the

solution of this problem is the recognition of the fact that we have not stated the problem quite accurately as the relation between mind and body. We have three things involved, not two only: the mind in its true or essential character, psychical phenomena, and physical phenomena. In the first instance, the problem is the relation between the brain and other neural tissues on the one hand, and the phenomenal consciousness on the other. Now physical and physiological changes do undoubtedly go on side by side with changes in psychical experience, and vice versa. There is concomitant variation, but this very concomitance means that both series of changes are connected with some cause which is distinct from either and is the secret of both; and this, one must find in the true primordial and actively conscious self as their real cause, though at first unrecognized and unknown as such. It is the organizing soul or mind that is the cause of both series and therefore stands over both, and by its will, its interests, its focusing of attention, determines the way in which the neural system responds. But it acts, as mind always acts, through final causation, through the attractiveness, or supposed attractiveness, of the end in view. One borrows here again from Aristotle. Sensitive soul and body are one—the obverse and reverse of the same reality—so that one may say that in a way the body is the expression in the physical order of just this soul in its present state of development. Passive reason may seem to be merely yielding to natural forces, but in truth creative reason stands over and dominates the whole psychical process and gives it both meaning and direction. For there is and can be no efficient causality acting directly upon the mind. Efficient cause is strictly limited to the world of physical fact. For example, the words that I utter as mere sounds, physical motions, affect your auditory nerves, but they cannot force themselves into your minds. You may close your ears and hear not. These motions as they reach your nerves may carry with them concomitant psychical phenomena which may forthwith vanish, leaving not a trace behind. They can enter your mind only with your own connivance, which in every case means the endeavor to come to a mutual understanding by reaching out toward our common Ideal of rationality.

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DISCUSSION

SOME CRITICAL COMMENTS ON A NOMINALISTIC ANALYSIS OF RESEMBLANCE

IN THE first chapter of his recently published *Essay on Critical Appreciation* Professor Ralph W. Church attempts to prove that there is no character common to all the things called beautiful, and therefore that the word 'beauty' does not refer to such a character. He bases these contentions on a nominalistic analysis of the meaning of the word 'resemblance' which is very ingenious and which, if sound, would be of considerable importance for the theory of knowledge. The following remarks aim to show that that analysis is unsound at crucial points.

1. *The problem of the meaning of 'resemblance in a degree' as between simple qualities.* Professor Church distinguishes two primary and two secondary meanings of the word 'resemblance'. The first three are as follows:

In the *first primary* meaning, resemblance is "quantitative identity repeated in various cases of itself, as in the example of a single hue that may and does appear here and there" (37); and since identity does not admit of more and less, resemblance in this first sense has no degrees.

In the *first secondary* meaning, resemblance is a relation not between several cases of one simple quality, but between two or more substances, or two or more complex qualities. It consists in identical repetition of a number of qualities in each substance, or in each complex of qualities. Resemblance in this sense admits of degrees: To say that substance S_1 resembles substance S_2 more than it resembles substance S_3 means that the number of qualities identically repeated in S_1 and S_2 is greater than the number identically repeated in S_1 and S_3. And similarly with complex qualities Q_1, Q_2, Q_3.

The *second primary* meaning of the word 'resemblance' is the one it has when simple qualities, which are not identical, are yet said to 'resemble' each other. It is here that a serious problem arises. The nature of the difficulty is perceived when we attempt to say what 'degree of resemblance' may mean *as between simple qualities.* What does it mean, for instance, to say that the hue, orange, resembles red *more* than it resembles green? Since hues are assumed to be *simple* qualities, it cannot mean (as it does in the case of *complex* qualities) that in orange and red a greater number of simple qualities are identically repeated than are repeated in orange and green. On the other hand, it cannot mean that orange is *red to a higher degree* than the degree to which orange is green. For "on a logic of contradictories, a quality may not be itself more or less . . . A is A absolutely, not to this or that

degree" (61), and A is not not-A, say B, at all. Thus, orange is not either red or green in *any* degree, but is only and wholly orange.

2. *Professor Church's criticism of the solution offered by Johnson's theory of the Determinable.* Before stating what he thinks is meant by speaking of degree of resemblance among simple qualities, Professor Church considers the answer possibly offered by W. E. Johnson's theory of the Determinable. According to that theory, the determinable, Color, is not any respect of resemblance between the various determinate hues, but the "unique and peculiar kind of difference" between them; and Professor Church interprets this as implying (although I find nothing in Johnson's text to support such an interpretation) that to compare hues as being more or less different is to find them to be more or less determinate manifestations of the determinable, Color (65). He points out, however, that one cannot consistently assert degree of difference and deny degree of likeness: That orange is *less different* from redness than it is from blueness *implies* that orange is *more like* redness than it is like blueness, for the second is but the converse of the first.

Professor Church, however, has a second objection to Johnson's theory of the determinable. It is the same objection he states again and again to the realistic hypothesis that 'color', 'beauty', 'resemblance', etc., are the names of as many abstract natures present in, respectively all colors, all beauties, all resemblances, etc. In the case of Johnson's determinable, Professor Church states the objection as follows: "This Determinable is no one, nor yet any range of those determinates; and so it is distinct from them all. As distinct from any determinate whatever, the Determinable is wholly indeterminate, and, therefore, quite unthinkable. And on the logical theory which is in question here, it is held that only determinates, never Determinables may appear, whether in perception, imagination, or thought" (66).[1]

3. *Criticism of Professor Church's first primary (alleged) sense of 'resemblance'.* Before examining Professor Church's own hypothesis as to the sense in which a simple quality, such as a hue, can be said to resemble another more or less than a third, certain critical comments may be offered on his views of resemblance as so far outlined.

First a minor one: When a certain hue exhibited by a postage stamp is identically repeated in another stamp next to it, we do say that *the*

[1] For the view embodied in this last statement, Professor Church refers his reader to Johnson's *Logic*, Pt. iii, pp. XVIII, XIX. But I am unable to find any such view expressed by Johnson at that place. Indeed, his view is much rather the opposite, *viz.*, that perceptions or images are always more or less indeterminate. See for instance, his *Logic*, Vol. I, pp. XXIX, where he writes that "neither images nor perceptions reflect the concreteness and particularity of the individual thing, which should be described as determinate, in contrast to the indeterminateness of the mental processes". See also the last two sentences of his chapter on the Determinable.

two stamps resemble each other; but we do not and cannot say that the hue at one place resembles the hue at the other. For the hue (not hues) at the two places is, *ex hypothesi*, not two but *one and the same;* and what we properly predicate of the hue at the two places is accordingly sameness, or identity, not similarity or resemblance. Thus Professor Church's first primary sense of 'resemblance' is in fact not an accepted sense of that word at all, but a sense forced upon it by him in disregard of the fact that 'identy' or 'sameness' and not 'resemblance' are the words in careful existing English for the kind of situation he describes.

4. *Some needed emendations of Johnson's theory of the Determinable.* Much more serious, however, is the criticism to which is open Professor Church's would-be refutation of the realistic 'common nature' hypothesis. His refutation rests wholly on the assertion that the determinable is wholly indeterminate, and that the indeterminate cannot be thought—indeed cannot be, for "to be, is to be determinate" (102). The question need not be raised whether Johnson holds that to be is to be determinate, for the important question is not the one *ad hominem* Johnson, but the one *ad rem.* Although I find Johnson's chapter on the Determinable highly illuminating, it seems to me to contain defects the removal of which leaves the notion of the Determinable less open to attack than Johnson's account makes it appear. Confusion is introduced, for example, by his giving red, yellow, green, etc. as names of *determinates,* whereas obviously they are names of *sub-determinables* of the determinable, Color. Red, for instance, has Scarlet, Vermilion, Crimson, etc., as *sub-determinables* of its own. On the other hand, no completely determinate color, I believe, actually has a name of its own in English, although there is no theoretical reason against it. Again, I believe Johnson is mistaken when he asserts that determinables such as Color and Pitch "cannot be subsumed under some one higher determinable". For in so saying Johnson is himself subsuming both under the determinable 'Determinable', and they can be subsumed under other, less inclusive determinables, such as 'Sensuous quality'.

5. *Criticism of Professor Church's would-be refutation of the 'common nature' account of resemblance as between simple qualities.* Removal of this last mentioned defect from the theory of the Determinable destroys the basis for Professor Church's contention that to take 'color' as the name of a determinable is to take it as the name of something *completely* indeterminate. It is to take it, rather, as the name of something *relatively* indeterminate. Moreover even Professor Church's assertion that the completely indeterminate can neither be nor be thought seems to me obviously mistaken, for when I hear or see the words 'completely indeterminate', I do understand them, and to understand them is to think what they mean. Furthermore, to say

that the completely indeterminate cannot *be*, seems to me to be saying that being cannot be—an obvious contradiction. Indeed, to assert as Professor Church does, that "to be, is to be determinate" is to assert that being, unqualified, is being, qualified (by the qualification, 'determinate',).[2] But Professor Church nevertheless appears to regard the assertion that "to be, is to be determinate" as self-evidently true, for he makes no attempt whatever to establish its truth, and yet rests upon it his whole attack on the 'common nature' view of the meaning of the words 'color', 'beauty', etc.

I may say in passing, however, that the use of the phrase 'common nature' in describing that view seems to me unfortunate, as being likely to breed confusions. I should prefer to say that 'color', for instance, is the name of a genus; that 'red', 'green', etc. are the names of coördinate intermediate species of it; and that the completely determinate colors are the *infimae species* of that genus. For since a completely determinate color is susceptible of existing at more than one place and time, or at no place or time, *i.e.*, is susceptible of *having cases*, whether many, few, or none, it cannot itself *be a case*, but must be *a species*, of color. This is to say that 'determinable', 'sub-determinables', and 'determinate' are synonyms for 'genus', 'species', and 'infima species'; these, however, *not* being synonymous with 'including collection', 'included collection', 'collection of one'.

The truth in the case of color thus seems to me to be that only completely determinate color can be seen or (I am inclined to believe) imaged; that the determinable, color, and its sub-determinables, *e.g.*, red, green, etc., cannot be either seen or imaged but can be thought, *i.e.*, conceived, by abstraction; and that (if the words color, red, etc., are taken to refer not to the capacity of physical substances to reflect certain components of light, but to kinds of hues,), for them to be thought is for them to exist, determinably.[3]

6. *Professor Church's own account of 'resemblance in a degree' as between simple qualities.* Let us now, however, turn to Professor Church's own hypothesis as to the sense in which orange may be said to resemble red more than green, (his *second primary* sense of 'resemblance'). He holds, and I think rightly, that, of any three hues,

[2] The phrase "to be, is to be determinate" states either a definition of being, or a proposition about being. Taken as a definition it constitutes an attempt to cram the genus, being, into one of its own species, and is a logical monstrosity. Taken as a proposition about being, it means that, of the two species of being, *viz.*, being determinable, and being determinate, only the second has cases. But this would need to be proved, and obviously the fact that such being as *sensation* exhibits is always of the determinate species is wholly irrelevant. Being, of the determinable species, is claimed to be exhibited not by sensation, but by *abstraction* out of a given set of sensations.

[3] For the defense I would give of this last contention see "Introspection, Mental Acts, and Sensa", *Mind* XLV, N. S. No. 178, April 1936.

one and one only can be said to be *between* the other two *as to hue*. That is, no matter in what spatial order they may happen to be, they are in a *qualitative* order which is intrinsic to them and therefore fixed. Orange, for instance, is by its very nature qualitatively between red and yellow. Professor Church then asserts that "the statement, orange resembles red more than purple means that orange is nearer red than purple in the intrinsic order of hues" (70); and that 'nearer than' in such a case means that there are *fewer* hues between orange and red than between orange and purple. From this he concludes that, when we speak of resemblance as between two simple qualities, *e.g.*, two hues, what we are actually comparing are not the hues themselves as such, but the 'degree of resemblance', *i.e., the number of other hues,* between a third one and each of them; so that resemblance, in the sense in which resemblance between simple qualities admits of degrees, is not a dyadic but an essentially triadic relation.

7. Criticism of Professor Church's account of 'resemblance in a degree' as between simple qualities. The question whether this analysis is sound turns on whether red, orange, yellow, etc., are said to have an intrinsic order because they all are perceived to resemble any given one of them in different degrees; or, on the contrary, are said to resemble any given one of them in different degrees because they are perceived to have an intrinsic order. For it is neither less nor more difficult to suppose that we have a certain sort of unanalyzable intuition, called intuition 'of greater or less resemblance' (as between hues,) than it is to suppose that what we have is a different sort of unanalyzable intuition, called intuition 'of before or after' (in respect of hue).

Professor Church prefers the latter supposition, but his only reason for this appears to be the unquestioned fact that the hue at one place either is identical with, or is not identical with, the hue at another place, and that neither identity nor non-identity admits of degrees. But this reason for his preference is a totally worthless one, for it ignores the possibility that when the hue at one place is non-identical with the hue at another, the two hues then always have a certain unanalyzable relation—distinct from and additional to non-identity—called similarity or resemblance, and that *this* relation admits of degrees. This possibility is masked for Professor Church by the fact already pointed out that, at the outset and in defiance of ordinary usage, he makes 'resemblance' synonymous with 'identity'—'similarity' synonymous with 'sameness'—where simple qualities are concerned, thereby begging unawares the crucial question.

For two reasons, I believe that that possibility represents the actual state of affairs. One of them is that Professor Church's allegation, that to perceive orange to be nearer to red than to green is to perceive that the hues between orange and red are *more numerous* than those

between orange and green, is patently mistaken. This alleged comparison of the numerousness of hues between each is pure myth. As a matter of psychological fact, it just doesn't occur. For let it be noted that, in order to perceive that orange resembles red more than green, we do not need to have had or to have—and we usually do not have—the intervening hues present to observation at all. Moreover, even in the exceptional cases where we have them before us, as in a solar spectrum, the hues between a given red and a given orange, for example, are not present to us as a collection of discrete individual hues at all, but as a band of continuously varying hue. We could break it up into a collection of discrete hues only under laboratory conditions, by correlating segments of that continuum with the collection of just noticeable differences we find under experimental conditions within that continuum. Only then could we speak of relative *numerousness* of collections of intervening hues as being actually observed. Obviously, therefore, it is on no such observation that practically everyone would base the assertion he would make, that orange resembles red more than green.

A second reason in favor of the supposition that resemblance as between simple qualities is a relation directly perceived and admitting of degrees is that, *independently of the perception even of intrinsic order among hues,* it would be possible to judge that two hues are very similar, or very dissimilar. For we can conceive a person to have had, up to a given time, acquaintance with *but two* hues, and therefore never to have had the opportunity to perceive intrinsic order among hues. Nevertheless, he might have always or almost always found it easy to say which one of the two he was experiencing at a given moment; or, on the contrary, he might have found it often difficult. I submit that—without need of experiencing additional hues or their order—this mere ease or difficulty of discrimination would provide meaning for an assertion by him that the two hues are, respectively, very dissimilar, or very similar.

8. *Professor Church's explanation of the fact that red, orange, green, etc., are all called color.* One point yet remains to be considered: Red, orange, green, etc., are all called colors by everybody. The hypothesis of a nature common to them all would account for the common name, but Professor Church believes he has good reasons for rejecting it. He must therefore, and does, offer another hypothesis to account for it.

I must confess, however, that although at practically all other places I find him admirably clear, the thread of the argument through which he approaches his hypothesis at times escapes me. I cannot follow it, for instance, in the passage reading ". . . we identify colours as colours, and . . . their *being* colours is the *reason* why we call them 'colours'. Thus diverse colours are not colours; and they are not

properly called 'colour'. . . . The reason why red, orange, yellow, green, blue, and purple are called by the same name, 'colour' is that they resemble each other (more or less) . . ." (98, 100). These are, or seem to be, flagrantly contradictory statements. Fortunately we need not be detained by them, for Professor Church's hypothesis is intelligible independently of the statements, such as quoted above, that lead up to it. It is, I take it, that red, orange, yellow, etc., and nothing else, inherently constitute one single qualitative order; and the entities constituting *that* order are the ones and the only ones we choose to call 'the colors'.

9. *Criticism of Professor Church's hypothesis.* The first objection that suggests itself is that this account of the reason for their being all called 'colors' is, unexpectedly, the account of a relational character identically predicable of each, which would thus constitute such a 'common nature' as Professor Church asserts they do not have. Whether that common relational character can properly be described as a 'common nature' in them all depends on whether that character warrants us in calling each *a color*, or only *one of the colors*. For there is a difference, and an important one, between the two: Since names can be assigned arbitrarily, a number of things may be of one kind, and yet not be called by the same name; and *vice versa*, a number of things may be heterogeneous, and yet be called by the same name. For example, we may draw up the following list of heterogeneous entities: Greta Garbo's first smile, the square root of two, Antony's last sight of Cleopatra, the fourth of July 1938, and the left eye of Lily Pons' pet jaguar. And we can stipulate that these shall have the common name, 'the A's'. This will enable us to say of each that it is one of the A's, *i.e.*, one of the things called 'the A's'; but it will not automatically warrant us in saying that it is *an A, i.e., has A-ness*, for the common character conferred on each by our calling them all 'the A's' is not A-ness or being an A, but being-called-'one-of-the-A's'-ness, which is not the same thing at all. For instance, the character Patience, and the character, being called Patience, are obviously distinct, since some women have patience but are not called Patience, and *vice versa*.

Thus, whether we have any right to say of each of the entities of our list not only that it is one of the A's, but also that it has A-ness, depends on whether there is any character, *already* called A, (whether determinate or determinable,) which happens to be common to all those entities *antecedently* to any character conferred on them by our selecting them, or by our assigning to them a common name. The restriction of antecedence is essential if the question is not to be a silly one, for an answer to the effect that they have in common the character, *e.g.*, of having been selected by us, would be an answer only to the silly question whether a number of things selected by us

have in common, *after* we have selected them, the character of having been selected by us.

Now, the character called "fitting into one qualitative order with red, orange, etc." is a character possessed by red, orange, etc. indeed antecedently to and independently of our selecting them as each a bearer-to-be of the name 'one of the colors', for that order is intrinsic to them—not conferred on them by us arbitrarily. The only question remaining is therefore whether that *ordinal* character is the one *already* commonly meant by 'being a color'. As reason for believing that it is not, I have already mentioned that in order to perceive that orange resembles red it is not necessary that a person be acquainted with any other hues but these two, nor therefore with the existence of intrinsic order among hues. To this I would add that when anyone hears the word 'color' used in ordinarily rapid discourse, it would be idle to pretend that the instantaneous understanding he does have of that word consists in formation by him of an image of red, orange, yellow, etc., in their order. Indeed, even when the word heard is, let us say, 'orange', rather than 'color', the fact is that usually no image at all of any particular shade of orange—and still less an image of all shades of orange in their qualitative order—is formed by us at the instant we understand the word. What is true is only that, if we give up attention to the subsequent part of the discourse and dwell instead on the word 'orange', then, after a moment, the image of some shade of orange will usually appear.

But the essential point is that we do not need to wait for it to appear in order to understand the word 'orange'. That word has meaning for us *instantly* on its being heard—prior to and independently of the appearing of an orange image. Thus, although it is true that the words 'color', or 'orange', *might* when we heard or saw them have brought to our minds always the image of a set of determinate hues in qualitative order, and never anything but that, the plain psychological fact is that they seldom if ever do this. Yet something, which is called understanding their meaning, is caused instantly to occur in our minds when we hear or see those words; and I submit that what is thus caused to occur is presence to our minds of a certain *determinable* character—much more tenuous indeed and difficult to introspect than are the images or sensations constituting its determinates—but just as real.

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ON RESEMBLANCE: IN REPLY TO PROFESSOR DUCASSE

IN *Some Critical Comments on a Nominalistic Analysis of Resemblance,* Professor Ducasse attacks an analysis of resemblance which is submitted in my *Essay on Critical Appreciation* as a basic

part of a theory in aesthetics. One of the main aims of that essay is to find a way by which we can explain what we mean when we say of a thing that it is 'beautiful'. Frequently enough, when we ask about the meaning of 'beauty' in this context or in that one, we are assured that 'beauty' is the name of something that is shared by or is common to the felt beauties of music, architecture, poetry, painting, and sculpture. For that reason it is really not difficult, we are further assured, to explain what we refer to whenever we say that felt beauties are 'beautiful'. Our statements refer to the nature, characteristic, or form, that is common to the diverse beauties of this world, and is, therefore, shared by this felt beauty and that one.

Now what is this common nature that is alleged to be the proper and peculiar referent of 'beauty'? It is no single beauty, such as that of a Doric façade. And it may be no range, however wide, of determinate beauties. For that alleged common nature must be at once common to or shared by diverse beauties, and also something or other in its own right. Since the common nature in question would be common to diverse beauties, the whole of it could not be present in any one determinate beauty, however vague and circumfused. Nor could it be the same as, or identical with, any range of felt beauties. For were this alleged common nature wholly present in the range of felt beauties x to n, the entire being of that common nature would be exhausted by the determinate beauties x to n. And in that case, something alleged to be common to beauties x to n would be nothing more than the felt beauties x to n. If this nature or form or characteristic that is alleged to be common to all determinate beauties is to be anything more than those respective beauties themselves, it will have to be distinct from them. But then as distinct from all determinate beauties, this alleged common nature could only be beauty-indeterminate. And beauty-indeterminate could hardly be felt.

Why is it, then, that there is little or no doubt in the minds of some thoughtful men that 'beauty' designates a nature, form, or characteristic that is common to felt, determinate beauties? One reason for this is that the notion of a nature or characteristic that would be *common* to diverse experiences is not called in question. Yet it would seem to be fairly clear that to assume x to be common to experiences a, b, c, is to assume that a, b, c, resemble each other in point of x. What, then, does it mean to say of two or more experiences that they resemble each other? This turns out to be a rather complicated question. The negative or critical side of the analysis of it which Professor Ducasse attacks may be stated, although very summarily, in the following way.

There are many things that resemble each other, in some sense or other of that term. Thus two copies of a book resemble each other, as do two prints drawn from a single plate. These two resemblances,

that of the one book to the other, and that of the two prints, are called by the same name. Does that mean that these two resemblances must therefore have a common nature or characteristic that would be their resemblance?

This question, it would seem, ought to be answered in the negative. In being common to diverse resemblances, this common nature or characteristic could not be any single resemblance, such as that of the hue of two current ten cent stamps. Since the common nature in question would be common to various resemblances, the whole of it could not be exhausted by any one resemblance. No more could it be exhausted by any range of them, however broad. For were this alleged common nature exhausted by the respective resemblances x to n, it would be nothing distinct from them: it would be nothing more than the respective resemblances themselves.

Yet if this nature or form that is alleged to be common to various resemblances is to be anything more than those very resemblances themselves, then it must be distinct from them. But as distinct from resemblances x to n—where x to n stands for all discriminable, or determinate, resemblances—this alleged common nature could only be resemblance-indeterminate. And being-indeterminate is unthinkable.

Thus we are constrained to conclude that the abstract term 'resemblance' is not the name of a common nature or form. This conclusion does not even tend to deny either the reality of discriminable, determinate resemblances, or that they are properly so-called. A resemblance such as that of two cases of perceived orpiment, a resemblance such as that of two cases of perceived middle C, or any other perceived resemblance, is properly so designated. But an alleged resemblance that would be common to determinate resemblances, *such as* those mentioned above, could be no resemblance *such as* this one, or *such as* that one; rather, it would be resemblance *as such*. This would be distinct from all determinate resemblances, to be sure; but that is to say that it would be resemblance-indeterminate. And resemblance-indeterminate is verbiage.

So far, one of two radically different senses of 'resemblance' has been under consideration. In this sense of the term, two copies of the same book exhibit resemblances, as do two engravings drawn from the same plate. These diverse resemblances resemble each other in being the same. The characteristics that constitute the resemblance of two copies of a book are the same in both books; as is also the case in the two engravings.

In the sense of the term 'resemblance' in which characteristics that resemble each other are the same, resemblances may be comparatively complex, or comparatively simple. The examples mentioned above exhibit resemblances that are complex. Two cases of perceived middle C constitute a comparatively simple resemblance. For reasons that

may be rather evident, but which cannot be even touched upon here, this comparatively simple sense of 'resemblance' is logically prior to the complex sense that derives from it.

Now when 'resemblance' is used in no abstract sense, but rather to refer to a discriminated resemblance such as that of the hue of two three-cent stamps, 'resemblance' is not the name of a qualifying predicate. In two cases of the same pitch, for example, there is no nature, form, or characteristic distinct from the pitches themselves that could be discriminated and called their resemblance, or their sameness. In any case of resemblances that are the same, such as that of two cases of the same hue, we have a single qualitative identity repeated in two cases of itself.

Rather than to indicate at this juncture the second one of the radically different senses of 'resemblance' which Professor Ducasse attacks, it may be well first to consider his critical remarks on the first of those two senses.

Professor Ducasse objects that my use of resemblance is "in defiance of ordinary usage", and not in accordance with "careful existing English". Professor Ducasse thus speaks of a rather broad field, and I shall not presume to emulate him. My use of the term 'resemblance' follows that of Hume. Professor Ducasse holds that 'identity or sameness' are words I should have used instead of 'resemblance'. Yet, with reference to resemblances that are the same, I say, "In any such case, we have a single qualitative[1] *identity* repeated in two cases of itself." And it is said by me again and again that resemblances that are the *same* are qualitative *identities*.

The arguments by which the conclusion is reached that 'resemblance' as an abstract noun is not the name of a nature or form that would be common to discriminated resemblances are not taken into account at all by Professor Ducasse. He asserts that I rest my "whole attack on the 'common nature' of the meaning of the words 'colour', 'beauty', etc." on the statement that "to be is to be determinate". This appears to me to be not so. For in my *Essay* this matter is argued out in some detail; it is not simply rested on a statement. But it would be difficult to discuss the matter with reference to Professor Ducasse's assertion, for he gives no reasons in support of it.

Professor Ducasse goes on to deny the validity of the tautology, "to be is to be determinate". In his asserted view, he is able to think beings that are completely indeterminate. He writes that my "assertion that the completely indeterminate can neither be nor be thought seems to me obviously mistaken, for when I hear or see the words 'completely indeterminate', I do understand them, and to understand them is to think what they mean".

In this sense of the verb 'to understand', anyone familiar with Eng-

[1] As distinguished from substantival identities.

lish syntax can understand even a contradiction in terms, such as 'an animated corpse'. But to understand that phrase as a phrase in English is not to be made aware of a living creature that is dead.

Yet in writing that "when I hear or see the words 'completely indeterminate', I do understand them, *and to understand them* (*i.e.* the words) is *to think what they mean*",[2] Professor Ducasse would seem to assert that because a man understands the words of a sentence or of a phrase in English, he is thereby made aware of "what they mean". Presumably this 'what' is the being-indeterminate whose reality it is "obviously false" to deny. Thus Professor Ducasse urges that, in virtue of his understanding of an English phrase, he is enabled to think, or at least to be aware of a being that would be no determinate, or distinguishable being whatever, but something quite indeterminate. This seems to me a very doubtful mode of argument indeed. Any English speaking person can 'understand' the phrase 'the present King of France'. But that linguistic understanding does not make him aware of a reality that would be properly designated by that phrase.

The contradiction ascribed to me in this connection by Professor Ducasse is indeed "obvious". A contra-diction in words is not difficult to formulate; and this one was formulated by Professor Ducasse, not quoted from the text he attacks. Had it first been said by me that being completely indeterminate is real, and then that being-indeterminate is unreal, I should have denied in the second place what I had affirmed in the first. But such is not the case. It is urged by me first and last, and again and again, that being-indeterminate is unreal; and that, therefore, 'being-indeterminate' is verbiage. That is not to say that being-indeterminate is real, and then to say that being-indeterminate is not real. Rather, it is to affirm only the negation that being-indeterminate is not real. This negation does indeed stand in contradiction to the assertion of Professor Ducasse that he can think being-indeterminate because he can understand the words; but it does not first affirm the reality of being-indeterminate, and then deny it.

Apparently it is less than evident that the statement, "to be is to be determinate', is a tautology. For in this statement the predicate term says what is said by the subject term. 'To be determinate' means what is meant by 'to be', for the reason that any being, however elaborate, simple, or tenuous, is *that* being, and no other one; it is determinate, not absolutely indeterminate or amorphous. Thus 'to be determinate' is equivalent to 'to be a being' for the reason that to be a being is to be a determinate being, not a characterless, amorphous nothing.

Professor Ducasse asserts that he can think being completely indeterminate, because he can understand the words, and to understand them "is to think *what* they mean". This would seem to lay claim to

[2] My italics.

a capacity that would transcend that of a mystic, or any capacity that a mystic would care to have. For the ultimate beatific vision is no amorphous characterless nothing; rather, it is something determinate, since it is distinct from the lesser beatitudes. To be determinate is to be distinct from something or anything else, and to be distinct is to be determinate—and that is to be a distinct being. A being that *were* not distinct from nothing would be not distinct from nothing at all.

It is not the purpose of Professor Ducasse to go so far as to assert that abstract nouns designate 'beings' that would be indeterminate. In his view, 'color' is not the name of anything completely indeterminate; rather it is the name of "something ***relatively*** indeterminate". It would seem that the qualification of 'indeterminate' by the term 'relatively' is not very helpful. Presumably the relatively indeterminate is less than wholly indeterminate. Otherwise the qualification 'relatively' would be pointless. The relatively indeterminate, in being less than wholly indeterminate, is, then, somewhat determinate. Thus we are to take it that 'color' designates a being that is more or less determinate.

Now what is the character, or what are the characteristics of this being? Not chroma, intensity, and saturation. Those characteristics are aspects of perceived colors, and Professor Ducasse is clear that the "relatively indeterminate" being in question is no determinate hue. But though it cannot be sensed or imagined, this alleged being can be thought. The nearest thing to a statement about what a relatively indeterminate being could be that I can find in Professor Ducasse's discussion, is his statement that, "'color', for instance, is the name of a genus; that 'red', 'green', etc. are the names of coördinate intermediate species of it; and that the completely determinate colors are the ***infimae species*** of that genus".

It would have seemed an old story that this appeal to an Aristotelian sort of theory gives rise to more difficulties than it even begins to resolve. So far as I can discover, not one of these difficulties is so much as mentioned here by Professor Ducasse. No more does he even indicate whether or not he regards the genus color as being the same in each one of its species, or whether it modifies and is modified in and by each one of them. And Professor Ducasse says nothing about how it is, in his view, that the genus and its species stand to each other. Yet it would seem that, if his statement about 'color' is to be more than an assertion, these questions, among several others, call for some consideration.

However, presumably the genus color is in some sense shared by its species. They participate in it, for it is their genus. Color, the genus, is no one and no range of its species. It is generic, ***qua genus,*** not specific. For reasons of space, I shall pass over questions that arise

as to how what is not specific can be *this* genus rather than *that* one. There are those who reply that a genus *is* specific; generically specific; but beyond that point they are reticent about the logic of what that could mean. The specificity of a being which *qua* genus would be *distinct from* the very species in which alone that being would be specific, might be difficult to make out.

If 'color' be the name of a genus, then what is that genus like? What does it resemble? Or, if it be said that the genus color resembles nothing, for color is unique, then in respect of what is color different from everything else? Either the alleged genus resembles something else, or it is unique. If it bears a resemblance to something else, and we know what this resemblance is, we ought to disclose that knowledge. On the other hand, if it be held that color is unique, then surely he who holds that view advisedly, does so on the basis of a knowledge of some at least of the respects in which this alleged genus is held to be different from every other being. Now if in fact a man is unable to describe either the respects in which an alleged genus resembles some other being, or the respects by virtue of which that alleged genus is unique, then he cannot describe that 'genus' at all.

Professor Ducasse says also that 'color' is the name of a "relatively indeterminate" being. This is to say, conversely, that the being in question is relatively determinate. If it be determinate at all, then it is this being rather than that being. If it be this being rather than that one, then either it resembles at least one other being, or it is unique. If, in point of fact, we are acquainted neither with a resemblance nor with characteristics in respect of which this alleged being is unique, then we are quite unacquainted with this alleged thing.

This is not to say that the only sense in which this alleged "relatively indeterminate" being might resemble anything else is the sense of resemblance indicated above. There is another radical sense of the term, to which we may now turn.

In the one sense of 'resemblance' that we have so far considered, the term refers, by virtue of its context, to a characteristic that is repeated in at least two cases of itself. Thus the statement, 'This shade of crimson resembles that shade of crimson' means what is meant by 'This shade of crimson is the same as that shade of crimson'. And that last statement means that the two shades of crimson are the same in the sense that they are identical in quality or character. In this sense of the term, a resemblance is a qualitative identity repeated in at last two cases of itself.

Ordinarily we do not compare two or more cases of a single quality. Rather we usually compare individuals, or substances, as resembling each other more or less. The way in which we do this that is logically cognate with the comparison of qualitative identities may be indicated

very briefly as follows. Let a, b, c, d, e, q, r, s, t, be the characteristics that are the same or repeated in the individuals I^1 and I^2. And let q, r, s, t, be the characteristics that are repeated in I^3 and I^4. Clearly more characteristics would be repeated in I^1 and I^2 than I^3. So the statement, 'I^1 resembles I^2 more than it resembles I^3', means that more characteristics are repeated in I^1 and I^2 than are repeated in them and in I^3.

Now let us notice that when we compare two or more cases of a single characteristic (a single shade of blue, for example) then each term of the comparison is that very single characteristic repeated in those two or more cases of itself. Let us consider also that when we compare several individuals as being more or less resembling (in this one of two basic senses of that phrase), we do so in respect of the superior and inferior numbers of perceived characteristics repeated in the individuals compared. These considerations may enable us to notice that in both of the two senses of 'resemblance' which we have distinguished so far, 'resemblance' designates (by virtue of its context) characteristics that are the *same* characteristics, in the two or more cases compared.

Yet, very often we compare characteristics that are *diverse,* not the same. We say rightly that perceived orange is more like red than green. But this is not so because more red is repeated in orange than in green. For no single hue in the range of hues that we designate as 'red' (or by cognate names) is repeated in any hue other than two or more cases of a hue properly called 'red'.

The fact that a red pigment can be mixed with a yellow pigment to yield an orange hue makes it seem plausible to say that orange is more like red than green, because orange is red to a degree higher than the degree to which it is yellow. Yet once it has been produced by the additive mixing of pigments, the perceived orange is the shade of orange that it is. And on a logic of contradictories, a quality may not be itself more or less. For A is A absolutely, not to this or that degree. Whenever we compare either individuals or complexes of qualities, we may speak of a superior number of repeated qualities as a superior degree of resemblance, if it be convenient to do so. But to refer to a shade of orange as either being or resembling any shade of red to a degree, would be to forget that (on a logic of absolute identity) any shade of orange is itself absolutely, not relatively; it would be to overlook the intrinsic self-identity of that hue.

In propositions which state comparisons of individuals (or of complexes of qualities) as resembling each other more or less, the referent of the phrases 'more resembling' and 'less resembling' will be the very qualities *repeated* in such individuals in point of superior and inferior number. Thus, when an individual I^1 is said to resemble I^2 more than I^1 resembles I^3, this will be so whenever the number of

discriminated resemblances found in S^1 and S^2 exceeds those discriminated in S^1 and S^3. In any such context, wherein individuals are compared in respect of self-identical resemblances repeated in them, the phrase 'more resembling', or a collateral phrase, will refer to the discriminated resemblances whose number, in the case of I^1 and I^2, is superior to the number of resemblances that are found in I^1 and I^3.

Clearly this form of comparison, in which the terms compared are qualitative identities repeated in at least two cases of themselves, does not take into account the comparison of degrees of quality. The two modes of comparison are radically different. In the one, the terms compared are the same, as in the example of two cases of the same shade of red. In the other, the terms compared are diverse, as are orange, red, and blue. Therefore the referents of a statement of degrees of resemblance may not be a repeated quality. What, then, is that referent? Not a quality that is that quality to any degree or other. For, as we have noticed above, on a logic of contradictories, the self-identity of a quality may not be a matter of degree.

Now it is easy to confuse these two senses of 'resemblance'. This confusion can engender a false demand. A man may notice that in any case of a resemblance where the terms compared are strictly the same, the terms have in common the very qualitative identity which is and exhausts their respective qualitative characters. If he fails to distinguish between resemblances that are the same and resemblances that are diverse, he may fall into the habit of feeling that diverse resemblances also must have a common nature.

Thus, in the case of diverse hues, it might be urged that because two cases of cobalt blue are the same *and* are said to be 'resembling', and because orange and red also are said to be 'resembling', orange and red must therefore be the same in some sense. This habit of feeling that diverse resemblances must be the same, or have something in common, because resemblances that *are* the same do have what they are in common, is an habitual confusion that is enforced by a fallacy.

The nature of this fallacy may be indicated in the following way. From the fact that diverse resemblances which are called by the same name are indeed called by the same name, it is sometimes argued that things called by the same name must be the same. The specious constraint of this argument derives from the unlimited conversion of an A. proposition.

If we are to avoid equivocation, all cases of the same thing ought to be called by the same name. It is assumed to follow from this that all cases of the same name may be properly used only with reference to the same thing. Yet this converse is illicit. The fact that for good practical reasons all cases of the same thing should be called by the same name does not even tend to imply that all cases of the same

name are properly used with reference to only one referent, let alone one that would be the same in and through diverse resemblances.

Any two (or more) resemblances that are strictly the same exhibit an identity in the very qualitative identity that is the qualitative character which those resembling qualities are. And if we confuse the use of 'resemblance' in this sense with that in which the same term is used with reference to resembling qualities that are diverse, naturally we feel that these diverse resemblances must have an identity 'in' the diverse qualities that they are. Two cases of the same shade of green resemble each other in being the same. Red, orange, and yellow resemble each other, though they are diverse. Anyone who failed to distinguish these two senses of resemblance, and thus took it that the referent of the second sense must be a resemblance in the first sense, naturally would posit a qualitative identity 'in' (say) red, orange, and yellow as being their resemblance. And thus a demand would arise for a nature or form that would be common to any range of resemblances that are called by the same name; such as, for example, the diverse hues.

Yet, what could this nature or form be? Clearly it could be no single discriminated hue, however nearly amorphous and circumambient. No more could it be any range of determinate hues—even though they were comparatively indeterminate and fluctuating in perception. Since this alleged identity in diverse hues could be no determinate hue, or range of determinate hues, it would be color-indeterminate. And as Aristotle, Berkeley, and Hegel have pointed out in their various ways, being-indeterminate is nothing at all (other than a phrase). What, then, is the referent of 'resemblance' in statements about hues as being more or less resembling?

It is sometimes said that no hue is definable. And there is a sense of 'definable' in which as much could hardly be denied. But to conclude from this that there is no sense in which a hue can be defined would be to infer too much. A hue can be defined in the sense that it can be identified by a statement which designates that hue and no other one.

Hues that are near each other on the circle of hues are sometimes called analogous hues. This name for them may serve to remind us that orange is to yellow and red, as red is to orange and purple, and so on. Therefore the statement, 'orange stands between yellow and red in the order of analogous hues' identifies a range of orange hues. And that statement identifies no other hue. For it is of the nature of orange and only orange that it is to red and yellow, as red is to purple and orange.

In the order of analogous hues, any hue stands where it stands because it is that hue. Thus orange is to red and yellow as red is to

purple and yellow for the reason that orange is orange. To say that orange might not stand between red and yellow in the order of analogous hues, would be to say that orange might not be orange. This is the case, *mutatis mutandis,* with any hue in that order.

Now let us notice also that the redness of a red is intrinsic to it. The existence of a perceived red requires an efficient cause, to be sure; but the being of a red is its formal cause. The being of any red is what it is. Just so with any quality. The reason for this is apagogic. To say that a red might not be what it is, would be to say that a red might not be red.

This may suffice to indicate (albeit very inadequately) that nothing extrinsic to a perceived red is required for an understanding of why it is that red stands between purple and orange in the order of analogous hues. It is of the very nature of any red that this should be so. It is also of the nature of any other hue that it should stand where it stands in the order of analogous hues. Nothing extrinsic to the perceived hues themselves is required that the ontological order of hues should be the order that it is. Red, orange, yellow, green, blue and purple stand to each other in that order because in their respective ranges of being they are purple, blue, green, yellow, and red.

The analogous order of hues is intrinsic to the hues of which that order consists. This is to say that the being of the order in question is exhausted in the respective natures of the hues that constitute it; for those hues stand to each other in that order because they are respectively the hues they are. Red is to orange as orange is to yellow for the reason that red is red, orange is orange, and yellow is yellow.

In my view, this intrinsic order is the referent of 'more (or less) resembling' in statements about hues as resembling each other more or less. To say that orange resembles red more than blue is to refer to the order of analogous hues, in which it is the case that orange is nearer red than blue. The statement, 'orange is more like red than blue' means what is meant by orange is nearer red than blue in the order of analogous hues. And that statement means that orange is nearer red than blue in that order, in the sense that between (say) yellow, orange, and vermilion there are fewer hues than there are between vermilion and (say) azurite.

Thus comparable qualitative positions in the analogous order of the qualities that are those positions, will be the referents of statements about degrees of resemblance in the qualities thus ordered. The referent of 'degrees of resemblance', in this basic sense of the phrase, is not at all a relation of comparison; *viz.,* a qualitative identity that requires at least two cases of itself for its illustration. For that referent is not a quality of any sort. Rather it is an intrinsic order of analogous items. That order consists of the analogous items which may be compared not in themselves alone, but as nearer to or further

from one another in the order which they, in their being analogous to each other, exhaustively constitute.

This is not to say that anyone comparing orange with red and blue first counts the intervening hues, and then decides that there are fewer hues between orange and red than between red and blue.

Whether or not this view of the matter is mistaken, it turns out to be a fairly complicated one. Some of the implications of it are brought out and discussed at some length (34 pp.) in the *Essay* to which Professor Ducasse addresses himself. Yet in his "Critical Comments", the summary of what he asserts to be my "*own* account of 'resemblance in a degree' between simple qualities", is made in less than a page. As far as I can see, this summary leaves all of my reasons and most of their subject matter right out of account.

As a consequence of this rather cavalier way of dealing with his intended subject, Professor Ducasse makes statements which to my mind reflect a deficient understanding of their intended object. For example, he ascribes to me the view that "when we speak of resemblance as between two simple qualities, *e.g.,* two hues, what we are actually comparing are not the hues themselves as such, but the 'degree of resemblance', *i.e., the number of other hues,* between a third one and each of them . . . ". No reference to the text supports this assertion. And as I understand the text, there is nothing in it that would justify it.

Professor Ducasse goes on to write, "Professor Church's allegation, that to perceive orange to be nearer to red than to green is to perceive that the hues between orange and red are more numerous than those between orange and green, is patently mistaken. This alleged comparison of the numerousness of hues between each is pure myth." Here again no reference to the text supports the ascription to me of a view that is not put forward by me. I quite agree that (usually, anyway)[8] when we compare hues we compare the hues themselves, not numbers of hues. And of course it is more than possible that a person could compare hues as more or less resembling without actually thinking about their analogous order. The whole of the discussion in my *Essay* of the difference between almost any *arrangement* of hues, as distinguished from their intrinsic order, would seem to illustrate this point.

Professor Ducasse appears to have read into my account of the referent of 'more or less resembling' views about the process of comparison that are not taken up at all in the text. It is nowhere said by me that we count *numbers* of hues in making a comparison of hues. Rather, I urge that *the logical referent* of judgments which compare diverse resemblances as more or less similar, is an intrinsic order in

[8] Among the exceptions that come readily to mind are the occasions when one is working on color tables.

which the items compared stand. In the case of orange, red, and blue, for example, *the referent* of the judgment, 'orange is more like red than blue', is the order of analogous hues in which orange is nearer red than blue. It is for the reason that there are fewer hues between orange and red than between red and blue in that order that it is true to say that orange is more like red than blue. The constitution of the analogous order of hues affords the reasons in logic why judgments that compare diverse hues are true, or false, as the case may be. One of the aims of my analysis of resemblance (in this sense of the term) was to point out *the referent of* 'more or less resembling', not to discuss matters that are brought up by Professor Ducasse in his "Critical Comments", but not mentioned in my *Essay*.

Professor Ducasse lays it down that, "The question whether this analysis is sound turns on whether red, orange, yellow, etc., are said to have an intrinsic order because they all are perceived to resemble any given one of them in different degrees; or, on the contrary, are said to resemble any given one of them in different degrees because they are perceived to have an intrinsic order." The analysis in question is my account of "resemblance in a degree as between simple qualities". The phrase 'resemblance in a degree', although quoted with reference to the text, has no counterpart in it. I mention this trivial matter because it seems to me rather characteristic of Professor Ducasse's cavalier ways of interpretation. The passage quoted above from his "Comments" is hardly more than a wide parody of the analysis in question. It is supported by no reference to the text, but rather by the following statements, which follow immediately after it: "For it is neither less nor more difficult to suppose that we have a certain sort of unanalyzable intuition, called intuition 'of greater or less resemblance' (as between hues), than it is to suppose that what we have is a different sort of unanalyzable intuition, called intuition 'of before and after' (in respect of hue)."

"Professor Church prefers the latter supposition . . . ." These assertions, too, are made without any reference to the text with which Professor Ducasse presumably is concerned. As far as I know, these assertions represent no views of mine, and I can find nothing in my text that would afford them encouragement. Nowhere is the notion of an 'unanalyzable intuition' of the order of analogous hues mentioned by me. The assertion that I "prefer" that "supposition" is more than gratuitous.

Professor Ducasse next proceeds to comment on what he says is my "explanation of the fact that red, orange, green, etc., are all called colors". "I must confess, however, that although at practically all other places I find him admirably clear, the thread of the argument through which he approaches his hypothesis at times escapes me."

Professor Ducasse is not only outspoken in stricture, he is admirably candid about his own doubts.

With all due deference, the escape to which Professor Ducasse refers seems to me to have been effectively made. He adduces disjointed parts of one sentence and parts of another, and tentatively finds contradiction in the result. Yet the full sentences would seem to be not inconsistent with each other. Professor Ducasse then gives a statement of what is (in my view) the referent of the abstract noun 'color' (as the reference of that noun is controlled by its context); and this, he says, is my explanation of why color is properly used with reference to the range of hues, or to any one of them. Yet this summary (which lays down an interpretation of twelve pages of text in three sentences) leaves utterly out of account the reasons which make up my explanation—not of the nature of the referent of color—but of why it is that, on the analysis of resemblance in question, the diverse hues are properly called by a single name. Professor Ducasse goes on to advance a criticism of his summary of my hypotheses. This criticism issues in the development of an alternative view that is avowedly his own, as well as in objections to that alternative view that to me seem to be well taken against it.

In his initial statement of this alternative view, Professor Ducasse says of two diverse hues, ". . . that when the hue at one place is non-identical with the hue at another, the hues then always have a certain unanalyzable relation—distinct from and additional to non-identity—called similarity or resemblance, and that *this* relation admits of degrees". Professor Ducasse has said that 'color' is the name of a relatively indeterminate being, and of a genus. Since the unanalyzable relation mentioned above is said to be the similarity between hues, presumably that unanalyzable relation too is a referent of 'color'. This suggests that, for Professor Ducasse, 'color' is the name of a genus that would be also a relation. That seems to me a rather confusing view of the matter.

But I find it most difficult to understand what the relatively determinate being in question would be like. In the first one of our two basic senses of resemblance, presumably this alleged being could be like nothing at all. For if, in that sense of 'resemblance', it were like anything (a hue, say), the being in question would be strictly the same as a hue.

No more could the relatively determinate being that is alleged to be the referent of 'color' resemble anything in the second sense of the term. The referent of 'color' could hardly be an item in the order of analogous hues. And that order of analogous resemblances would seem to be the most likely one in which the being in question would stand.

It may well be that this being is like something or other in a sense

of 'resemblance' that remains in the dark. Or it may very well be that for Professor Ducasse this relatively determinate being is unique and therefore unlike anything whatever. If this be Professor Ducasse's view, then presumably he is aware somehow of the peculiarities in respect of which that being is unique. In that case, I for one would be grateful if he would share his information.

Then again, perhaps it may be that Professor Ducasse's relatively determinate being is real but unknown; so that neither he nor anyone else could say what it is like, or whether or not it is unique. However, that would seem to be not Professor Ducasse's view of the matter; for his assertions about the reality of that alleged being seem to betray little hesitancy. Now if the subject of these affirmations be known, we could be told something of what it is like; or, if not that, still something of the respects in which it is unique. But if this alleged being is neither known to be like anything, nor known to be unmatched, then it would be a mistake to say that we have any knowledge of it.

If we acknowledge the tautology that to be is to be determinate, then we see in principle that this knowledge could not be ours. And to acknowledge that to be is to be distinct from something else, is not to take it that to be is to be a Cartesian simple nature, or a Humeian impression, or a sensum, or something merely definite and 'just there'. A pang of nostalgia, a puff of smoke, or the phosphorescent glow of the breakers, is distinct from something else; it is determinate. Since resemblance *as such* could be neither a determinate resemblance, such as two prints of the same photograph, nor any range of resemblances, such as the field of hues, resemblance as such can only be referred to as nothing at all.

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PHYSICS, PROBABILITY, AND MULTI-VALUED LOGIC

I

IN AN article on "Modality and Probability" (this *Review*, 1937, XLVI 78-85) Dr. L. O. Kattsoff lays the foundations for a logic which will combine 'probability' and 'modality' in a single system. This is accomplished through the use of a multi-valued logic in which fractions between 0 and 1 are used to represent both (or either). In undertaking this synthesis Kattsoff rejects (82) the theory of probability which defines it as a measure of our knowledge or ignorance and, following an alternative view that probability represents "a frequency of certain factors", arrives at the definition: *"The probability of a proposition p is the proportion of cases in which p is or can be valid to the total number of cases in which it can be valid or invalid."* Thus,

in this view, which recognizes "the inadequacies of a logic based upon three or any finite number of modes", the modality of a proposition (its "coefficient of verification" or truth) and the probability of that proposition are identical.

Up to this point I can at least understand Kattsoff's exposition. It is also clear that he is moving in the same direction as Reichenbach, and this might be considered as a virtue in his view, even though previously Kattsoff had criticized Reichenbach's *Wahrscheinlichkeitslehre* in his review of that book (*Cf. Phil. Rev.*, 1936, XLV 625-630). Moreover, as Kattsoff further develops his doctrine in a later paper on "Undefined Concepts in Postulate Sets" (*Phil. Rev.*, 1938, XLVII 293-300) there is no considerable increase in difficulty in understanding the movement of thought. But now, in an article on "La logique non-aristotelicienne et la crise en science", (*Scientia*, 1938, LXIV 49-52), Kattsoff's views take a new turn which introduces a note of confusion and threatens to undo all his work up to this point. The purpose of my own comments, therefore, is to point out to Dr. Kattsoff the difficulties he is getting into, while at the same time trying to clear up some misunderstandings of my own view as they appear in Kattsoff's *Scientia* critique.

One thesis of Kattsoff's *Scientia* article is consistent with the theme of his paper on "Modality and Probability", namely, that the development of a non-Aristotelian logic (a multi-valued logic of modality or probability not limited by Aristotle's law of excluded middle) is feasible logically. But the further thesis of the *Scientia* article seems to me to part company with this view. I quote two sentences: ". . . this discussion does not deny the validity and possibility of an n-valued logic. It merely denies that in science we have an indication of the need for such a logic"; and "It appears to me that so far there is no evidence for multi-valued logics in physics." This is the point where confusion appears. What is the point to assimilating probability and modality through an n-valued (or infinite-valued) logic if there is no need for such a synthesis? Does Kattsoff mean that all his work up to the present is fruitless because science has no need for probability ('modality') statements? Having, as we have seen, abandoned the 'subjective' theory, the probability of propositions in the revised frequency theory represents a ratio, and if this ratio does not rest upon the abandonment of a two-valued logic (true-false) are we not back to the subjective theory where everything is either necessary or impossible (*i.e.*, the propositions are 'true' or 'false', except that we in our ignorance don't have enough information to say which)?

My uncertainty about the central tendency of Kattsoff's thinking is increased by noting the idealistic motive at work in his reasoning. In the *Scientia* article he frankly states that logistics is demonstrating its root similarities to idealistic logic. Again, in his paper on "Unde-

fined Concepts", he recognizes that the thesis that undefined concepts are simply entry points into systems has affinities with Bosanquet's theory of "implication and linear inference". Moreover, like a good Hegelian, he defines the 'essence' of a thing in terms of its properties, and by 'properties' of a thing he means the way in which it affects other objects, its relation to other things. But in my own view, which Kattsoff's critique sets out to destroy, it is precisely because properties are not absolute but are relations that I have suggested the need for a non-Aristotelian approach to escape the resulting contradictions which appear in the list of "Theses" and "Antitheses" in my own *Scientia* article. Moreover, when Kattsoff claims affinity with idealism for his views, does he not forget that it is the idealists themselves (*e.g.*, Hegel) who challenge the law of excluded middle, and that Bradley's denial of the law of identity is quite in keeping with at least a certain variety of idealism? And so I repeat, it seems to me that Kattsoff really belongs in the camp of the non-Aristotelians, and in writing his "critique" he surely did himself a disservice, for he has simply nullified much of his own previous work.

Having thus indicated one difficulty I have in understanding Kattsoff's views, let me next say what I can to meet his criticisms of my own position.

II

When several years ago the idea was considered[1] that modern physics requires a non-Aristotelian logic because, among other reasons, the law of identity is rendered non-true by the wave-particle opposition, a number of critics vigorously objected. Dr. A. E. Avey, my former teacher in logic, regretted the apostasy on general grounds. But even more specifically it was pointed out to me by Dr. Herbert Feigl that P. A. M. Dirac's theory of radiation promises to resolve the wave-particle difficulties in physics. Since then others, including Dr. Kattsoff, have added their expressions of dissatisfaction with my reasoning.[2] But in my volume, *Philosophy and the Concepts of Modern Science* (1935, Ch. III), the original thesis was reaffirmed, and it was pointed out that Dirac's theory has *not* abolished this troublesome problem. It is significant that in the last edition of Dirac's book, *The Principles of Quantum Mechanics* (1935), Dirac admits in conclusion that, "It seems that some essentially new physical ideas are here needed". That something like a non-Aristotelian principle is creeping in, even in Dirac's theory, appears in his interpretation of the *principle of superposition*, which affirms that between the states of

[1] See my papers, "Physics and the Laws of Thought", *Psyche*, 1931, XI 70-78; and "Non-Aristotelian Logics", *Monist*, 1935, XLV 100-118.

[2] See for example the comments of S. K. Langer in the *Journal of Symbolic Logic*, 1937, II 88-89, and René Sudre in *Journal des Debats* (Paris) March 12, 1937.

an atomic system "there exists a peculiar relationship such that whenever the system is definitely in one state we can consider it as being partly in two or more other states. The original state must be regarded as a result of a kind of *superposition* of two or more states in a way which cannot be conceived on classical ideas". Now in the system of Aristotelian logic the proposition, 'this system is in a given state', would be false (or true) and the contradictory proposition, 'this system is in some other state', would be true (or false). But if we say the 'same' system is simultaneously in two different states, this appears to violate the canons of Aristotelian logic, though it fits in nicely with a non-Aristotelian logic which banishes all absolutes.[3]

In order to show that modern physics is not departing from traditional modes of thought Kattsoff quotes from Eddington, who states that "unless the structure of the nucleus has a surprise in store for us . . . there is nothing in the whole system of laws of physics that cannot be deduced unambiguously from epistemological considerations". This quotation does not impress me. More than one eminent physicist has stated that physics today is in need of some new ideas or principles if it is to present a coherent picture of physical reality—but let that pass. Rather I prefer to argue that Eddington, perhaps without realizing it, *is* departing from traditional modes of thought.

In his recent book, *New Pathways in Science* (1935), Eddington tells us that wave mechanics provides one meeting point for relativity theory and quantum mechanics. He states that the electron has no physical properties. If it were absolutely alone nothing whatever could be said about it (225). In present-day physics the most fundamental equation is the wave equation for an electron, and this for Eddington represents a relation between the size of an electron and the size of the universe. That is, the wave equation describes the electron in relation to a physical comparison object, and for Eddington this is the universe as a whole, the Lemaître spherical universe. (This, of course, is a further development of Einstein's relativity theory in which mass is

[3] To deny that a system is in the 'same state' does not help us. If a thing is what it does and the thing does different things in different environments, it is not the same 'identical' thing. Dr. F. S. C. Northrop (Cf. *Philosophy of Science*, 1938, V 168), following Landé's suggestion, states that wave-particle difficulties come from a confusion of two independent parallel languages, the language of particle physics and the language of wave physics. In commenting on this suggestion I would point out that if, under one set of conditions, light acts *as if* it were a wave phenomenon and, under other conditions, acts *as if* it were a corpuscular phenomenon, then on the behavioristic principle that a thing is what it does, light 'is' these two things. But what this situation really means, I think, is this: we must now recognize that the separation of the observer and the observed—or in this case the source and the sink of radiation—is artificial; they play a correlative rôle. Light is a manifestation of a non-elementalistic or wholeness situation and 'particle' and 'wave' concepts taken alone and in isolation give only part of the story. This is our own interpretation of what Bohr calls the principle of complementarity.

a manifestation of the curvature of space-time.) It also turns out on Eddington's theory that the number of particles in the universe has not been decided by arbitrary choice, but is fixed by some inner necessity, the cosmical constant in fact (253). Thus one may find relations in nature which tell of the behavior of the universe in terms of an electron, and to measure the mass of the electron one can make observations on the distance and velocity of recession of spiral nebulae. This, I submit, is something new in thinking. At the very least it commits us to a non-Aristotelian principle of complementarity.

That Eddington recognizes the breakdown of the notion of identity as applied to physical systems is evident from the following. In the volume from which Kattsoff quotes (*Relativity Theory of Protons and Electrons,* 1936) Eddington points out (234) that it is permissible to regard the individuality of an electron as composite, and then states that "an average particle is the particle which is fulfilling a particular rôle; and the conception arises when there is in the assemblage always one particle, or probability of one particle, playing the rôle; but the identity of the particle is continually (and, for statistical purposes, continuously) changing. We shall find later that it is impossible even in microscopic theory to assign identity to different particles at different times in an absolute way".

In explaining our own view of this situation it is necessary to reiterate that for us the rejection of the law of excluded middle is inseparably linked with our rejection of the *fallacy of the absolute individuality of the subject* (*substance*). If we adopt the terminology of George H. Mead in his volume, *The Philosophy of the Present,* we may say that the wave character by means of which the 'individuality' of a particle dissolves into the 'mist' of the indeterminate (of a 'probability wave') is an expression of the 'sociality' of the electron. In this connection it is interesting to see how the concept of emergence finds support in the doctrine of relativity concerning the non-additive character of physical situations. Mead's conception starts from the thesis that temporal transition is itself a kind of relativity, while sociality is a capacity for being several things at once, due to the fact that the novel event is both in the old order and the new order which its advent heralds. Thus Mead arrives at an original interpretation of physical relativity. Here the increase in mass, which on relativity theory accompanies the increase in velocity, is due to the fact that the 'emergent' motion changes the physical character of its object (the mass). And just as emergent velocities change the character of masses, so Mead holds that in a similar way life changes the character of its world.

With this non-Aristotelian physics as a background (non-Aristotelian because Aristotelian logic and science permit nothing new, no real evolution, and no genuine dialectic) one can proceed to develop

an entire philosophy of nature. Along these lines, for example, we can proceed from the supposition that the human time sense is a function of the velocity constants of the chemical reactions in the brain (Hoagland, Reiser[4]), add to this idea the supposition of Dr. W. M. Malisoff that the velocity constants of chemical reactions are related to the earth's gravitational constant and come out with the notion that possibly the human time sense is a function of the rate of expansion of our cosmic bubble. It is also clear that such a non-Aristotelian (non-elementalistic or organismic) way of viewing nature will eventually lead to a new theory of biological evolution, as indeed the writer has tried to show.[5]

The full development of these ideas cannot be undertaken here, but to indicate what I mean let me return to the notion of emergent evolution as it was reinterpreted in terms of the notion of the emergent dimension in *Philosophy and the Concepts of Modern Science* (Ch. VIII).

III

The concept of a historically new or emergent dimension was deliberately framed to provide a reconciliation of the *relativity* of motion with the *absolutivity* of motion. This is the manner in which the synthesis is attained.

The type of motion in which mechanics is primarily interested is subject to all the principles of the theory of relativity of Einstein; but *growth,* a type of motion (change) in which physics hitherto has not been greatly interested, is *not* relative. It is a form of change to which present Einsteinian relativity does not apply. Motion as it is represented by the fourth coördinate of the space-time continuum is relative; but evolution, we insist, calls for a new dimension of time (a new form of temporal organization). This historically new dimension of growth is the $n + 1$ dimension, where 'n' is any lower spatial dimension of 'materiality' out of which the higher temporal organization of growth emerges.

Whenever we can refer to a system as a whole, with its spatial coördinates and its own 'local' time, this time is transposable across the parts, as Wheeler says.[6] If now this system (K_1) enters into dynamical interaction with another system (K_2), the two together may form a new system, and this system, so long as it is treated as a whole, will also have its (phenomenal) time transposable across the whole. *This new ('public') time is what we mean by the emergent dimension.* The 'social' order which brings a 'public' time out of the

[4] *Cf.* "The Chemistry of Time", *Philosophy of Science,* 1934, I 351.
[5] See my paper, "Cosmecology: A Theory of Evolution", *Journal of Heredity,* 1937, XXVIII, 367-371.
[6] *Cf.* "Organismic Logic in the History of Science", by R. H. Wheeler, *Philosophy of Science,* 1936, III 26-61.

'local' times of the individual constituents may even have its own 'emergent mass', as Mead would say, and this, for us, represents the nonlinear sum (or *gestalt* property) of the family of subordinate systems.

At this point we pause for a moment to indicate how this notion of 'organic' time as an emergent coördinate associated with the unique (absolute) dimension of growth (evolution) fits in with our non-Aristotelian approach. The process of emergence, whereby a thing changes (ceases to be what it was and becomes what it is), defies the laws of Aristotelian logic in the sense that it is 'unintelligible' to us. This unintelligibility in terms of traditional habits of thinking is curiously reminiscent of the difficulties inherent in Zeno's paradoxes of motion. To see this let us turn to the ancient Greeks for a moment.

In order to show that Zeno's paradoxes of motion are indeed a product of the 'laws' of traditional logic (even though the first explicit formulation of the laws is credited to Aristotle), let us note first of all that the law of excluded middle would be always and everywhere applicable in a static universe, or in a universe of discontinuous change and movement, *but this law does not hold in a temporally continuous process.* This can be exhibited by reference to the first premise of one of Zeno's paradoxes. The argument states: *A thing must either move where it is or where it isn't.* This is the law of *tertium non datur* (L.E.M.), *that A is either B or non-B,* but not both. Zeno then continues: But a thing cannot move where it is; neither can it move where it is not; therefore, motion is impossible! Putting the argument in symbolic form: $m = w + w'$

$$m \not< w$$
$$m \not< w'$$
$$\therefore\ m = o$$

Now the difficulty here is that *motion is precisely the process whereby a thing gets from where it is to where it wasn't*—a third possibility which the law of excluded middle completely disregards. In reality, therefore, we find: $m = w + w' + (w \rightarrow w')$. Thus we agree with Brouwer that Aristotelian logic is derived from an abstraction from the mathematics of finite classes (and discontinuous processes) which was then universalized. Brouwer goes on to argue that the law of excluded middle is not applicable to (or cannot be shown to hold for) the domain of the *transfinite.* But this same idea of *infinity* (along with the cognate concept of *continuity*) underlies the whole modern mathematical analysis of motion (in differential calculus). And so Brouwer, like Hegel, must reject the present handling of the problem of motion and change, and like Hegel, though for somewhat different reasons, he must surrender one of the classical laws of thought of Aristotelian logic.

In our own view we try to bring these two criticisms (of Hegel and

Brouwer) together. We hold that the symbol $(w \rightarrow w')$ represents neither logical addition nor logical multiplication, nor any other operation of traditional or modern symbolic logic. This is what in mathematics introduces continuity and infinity into the analysis of motion and change, but for us it is also what symbolizes the passage from the 'is' to the 'is not' of any changing, moving, or evolving entity. In this case '→' symbolizes the change (growth) whereby the new time-dimension emerges. At this point the particle-aspect associated with 'identity' is lost in the emergence of a phenomenally new whole, with its own time-system transposable across the parts. As an example of such emergence consider the case of a water wave. Even though water as a *fluid* is composed of discrete H_2O molecules, we apply a mathematics of the continuous (hydrodynamics) to the medium. The wave we see moving over the surface of the water is composed of molecules which move in but one direction—up and down—and yet the crest of the wave moves forward in a new dimension—horizontally. And so in other cases of emergent rhythms. We suppose that each wave represents the averaging effect of a statistical ensemble, because the field-forces are integrated to produce a macroscopic rhythm.

Because of the foregoing difference in symbolism we cannot accept the difficulties created by Kattsoff's statement of a non-Aristotelian (n-valued) logic as applied by Kattsoff to my own view. Following the three-valued logic of true, doubtful and false (1, ?, o), Kattsoff presents us with the now conventional truth table. But he, like other expositors of multi-valued logic, treats doubtful (?) as he treats truth (*i.e.*, as something definitely known), and this is really equivalent to treating doubtful as if it were not doubtful. The conventional assumption of classical logic is this:

$$1 = p \vee \sim p; \; o = p \cdot \sim p$$

or

$p = t + t'$ (a proposition is either true or not-true = false)

But in our symbolism: $p = t + f + (t \rightarrow f)$. Here the degree of doubt is not specified because it changes with time, and true and false become (asymptotic?) limits of a modal logic in which continuous variations occur. This of course also commits us to a statistical theory of classes.

By way of providing additional validity to our claim for the need of a non-Aristotelian logic in science we may refer to the paper by Zawirski.[7] This writer argues that the duality of wave and corpuscular physics can best be understood in the light of the three-valued logic of Lukasiewicz, where possibility is introduced as a third alternative.

[7] "Über die Anwendung der mehrwertigen Logik in der empirischen Wissenschaft", by Zygmunt Zawirski, *Erkenntnis*, 1936-37, VI 430-435.

The propositions of wave and corpuscular theories are contradictory in a two-valued logic, but in Lukasiewicz's logic, which dispenses with the law of excluded middle, the two are equally legitimate in the sense that they are not true or false but *possible*. This approach is somewhat different from our own. In our version of the situation we hold that a 'thing' can never be understood except in terms of its effects upon its environment. Our rejection of the physical application of the law of identity (we have never rejected the *principle of symbolic univalence*) thus avoids the fallacy of the absolute individuality of the subject of predication. The ontological correlate of this is found in the criticism of the non-relativistic notion of 'substance', 'properties', 'states', etc.[8]

It seems to me that Kattsoff has overlooked these features of my own argument. He states that when we have a situation in science where our conceptions compel us to affirm contradictory propositions that only means that we need to revise our definitions of the things we are talking about (*e.g.*, waves and particles). But this ignores my thesis that in an organismic (non-elementalistic) situation it is never possible to formulate definitions of constituent entities in such a way that these definitions are mutually exclusive and of such a nature that the resulting assertions ('laws of behavior') will be completely free from contradiction. Dr. Langer commits this same mistake when she says (*loc. cit.*), " 'Non-Aristotelian logic' remains an enigma, a fuzzy appelation for certain ideas of physics that are still in the making and therefore not entirely articulate". In comment on this I would state that anyone who believes in a world of emergent evolution, from the very 'bottom' of nature (electrons, protons, photons, etc.) to the very 'top' of nature (possibly the expanding universe as a whole), where the bottom and the top mutually determine each other, must hold that new ideas in physics are always "in the making" and never will be "entirely articulate". I have no such faith as Dr. Langer that a "more careful definition of both concepts" (wave and corpuscle) will eliminate contradiction.[9]

[8] In quantum mechanics the definition of the 'state' of a system is abstract and is stated as a function of the 'configuration space'. It must be noted that this definition of the state of a physical system contains a subjective element. As E. C. Kemble puts it (*Cf. The Fundamental Principles of Quantum Mechanics*, 1937, p. 54), "Knowledge of the history of a system prior to the chosen epoch is necessarily subjective and can be different for different observers of that system". This, however, does not modify our previous contention that a non-Aristotelian principle is creeping into Dirac's theory, for this relativity of the observed to the observer is in harmony with our reinterpretation of the complementarity principle and the conjugate rôle of the 'thing' and its 'comparison object'.

[9] It is interesting to note that the above interpretation finds support in a paper by C. G. Darwin on "Logic and Probability in Physics", (*Science*, 1938, Vol. 88, 155-160). Darwin asks, what is the moral of these new developments in physics? "It is that the new physics has definitely shown that

Perhaps this same misunderstanding underlies the criticisms made by Margaret MacDonald.[10] She accuses me of a confusion of types of problems in philosophy and physics, asserting that "This typical confusion of problems is shown in his treatment of the intellectual 'crisis' in science. He regards it entirely as a conflict between physics and the laws of thought since physicists regard the electron both as a wave and a corpuscle, and so deny the law of contradiction. He gives no analysis of what it can *mean* to say that 'physics' conflicts with the laws of thought".

The reply to this is that I do not argue that the new physics contradicts (conflicts with) *all* laws of thought. I prefer to say that the present facts cannot be properly systematized and interpreted by the traditional Aristotelian laws of thought, but can be so organized through the use of non-Aristotelian principles. For me every logic is (involves) a metaphysics. Since I cannot accept the dichotomy of *form* and *matter* in logic, I cannot separate a particular physics from the logic used to express it. The present view rejects the thesis that thought structures are the manipulation of meaningless marks according to arbitrarily selected rules of operation. Logic is not an autonomous science. The theory that the laws of thought have no existential reference (or ontological significance) overlooks the *historical* fact that for Aristotle logic and metaphysics were inseparable and the *contemporary* fact (as I believe) that any statement (or logical principle) is meaningless until it is interpreted (set in ever-widening contexts). On this view, which is opposed to logical positivism, there are epistemological and ontological assumptions behind every logic, even though it must be admitted that when you try to state these assumptions you are forced to make certain logical presuppositions (*e.g.*, in the logocentric predicament) when doing so. The situation here is circular, but it is not a vicious circle (perhaps it is spiralline). If, as Dewey points out in his book, *Logic, the Theory of Inquiry*, the principles of thinking have themselves arisen in the progressive course of inquiry, then any system of logic reflects not only its cultural *milieu*, but (I would maintain) also a system of metaphysics. According to the view here presented there are three such cultural matrices, or social stages in the evolution of reasoning, as we have explained in

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nature has no sharp edges, and if there is a slight fuzziness inherent in absolutely all the facts of the world, then we must be wrong if we attempt to draw a picture in hard outline." One of the examples of this fuzziness (ideas not "entirely articulate", Dr. Langer would say) which Darwin cites is analogous to the illustration we ourselves selected (involving the principle of superposition). Darwin states: "We used to think of the gas as *either* in state A, *or* the state B, *or* in C, but according to the new physics we have to think of it as in *all* the states *A and B and C*." In view of this situation, may we not suppose that Darwin's speculation about a "new reformed principle of reasoning" will find its consummation in a non-Aristotelian and relativistic notion of substance, states, and properties?

detail elsewhere.[11] The implications of this theory of mental-social evolution for ethics and social science are also developed elsewhere.[12]

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THE MEANING OF THE HUMANITIES[1]

THE battle of the arts was not called off by the death of those eminent humanists, Irving Babbitt and Paul Elmer Moore. A searching re-statement of Babbitt's views, with important reflections of his own, was given by Louis Mercier in his noble book, *The Challenge of Humanism* (1933), Werner Jaeger has set forth in monumental works the meaning and the history of an Hellenic humanism that is still our birthright,[2] and now Princeton University has devoted a volume of the Spencer Trask Lectures to the meaning of the Humanities. Five distinguished scholars cast on the Humanities, and more especially on Humanism, the lights of philosophy, history, art, theology, and literature, while two eminent Princetonians introduce the subject and sum it up. If there is no formal statement of just what the modern Humanities are, Humanism itself shines in a new and varied splendor.

Three elements appear in these well-written essays. All the contributors have something to say on the nature of Humanism, on its history, and on its relation to contemporary education. They all agree that our programmes for school and college should be more humanistic than they are. But since the very character of humanism involves some wholesome disagreement on the part of its champions, certain points of difference appear in the estimates here presented.

These differences emerge most plainly in the essay of Professor Perry. From the essence of his analysis, I take it, none of the company would dissent. He defines the Humanities as "whatever influences conduce to freedom". Freedom is attended by the graces of learning, imagination, sympathy, dignity, and "civility". He indicates that humanism is not inimical to religion, a point reinforced with a sober dignity by Professor Calhoun. He examines the history of humanism from the Renaissance on, in such a way as not to interfere with

[10] See her review of "Philosophy and the Concepts of Modern Science" in *Philosophy*, 1938, VIII 501.

[11] *Cf.* "Aristotelian, Galilean, and Non-Aristotelian Modes of Thought", *Psychological Review*, March, 1939.

[12] *Cf.* "Humanism and the World Mind", *South Atlantic Quarterly*, April, 1939; and "Gestalt Psychology and Organismic Theory", *Journal of Social Philosophy*, April, 1939. See also my volume, *The Promise of Scientific Humanism*, 1940, Part III.

[1] *The Meaning of the Humanities*. Five Essays by Ralph Barton Perry, August Charles Krey, Erwin Panofsky, Robert Lowry Calhoun, Gilbert Chinard, with a preface by Robert Kilburn Root. Edited by Theodore Meyer Greene. Princeton, Princeton University Press, 1938. Pp. xl, 178.

[2] See *The Philosophical Review*, 1938, pp. 436-438.

the more complete and more authoritative account given by Professor Krey. One could wish that somewhere in the book more than a passing reference or two could be devoted to Cicero. Professor Panofsky throws a neat bouquet to Erasmus—both thinkers deserve at least a page in a work of the present scope. Professor Perry then relates the "unnecessary battles" that some humanists have fought against science, humanitarianism, democracy, romanticism, and modernity. A sympathetic tolerance towards diverse modes of thought and of expression is indeed a trait of the humanist—*humani nil a se alienum putat.*

But doubts arise when Professor Perry turns to history, to "distinguish the essential meaning of humanity from its accidental embodiment and associations". For this essence of humanity is no faith once delivered to the saints, but merely Professor Perry's statement, a noble statement, of what he finds humanism to be. It is more in keeping with our age to examine the historical expressions of what has called itself humanism and to proceed inductively to its meaning rather than to lay down certain principles, or δόγματα, as the ancient philosophers would say, and to watch them step from the eternal heavens into the accidents of time.

Further, when Professor Perry applies his humane conceptions to the educational problems of our day, one may find, despite the charm and the breadth and the fresh, modern air of his argument, that some of the remarks on literature, on language, and on science, are strangely intolerant, strangely narrow, and strangely out of date.

For, first, there is nothing tolerant, or enlightening, in laying low a manikin of straw, with Hallowe'en, hobgoblin face, yclept "Classicism" and declared to be "an indoctrinated humanism, which is not a humanism at all", which "imprisons the spirit of man", "cultivating a posture of retrospect" and "the fixed conviction that the future can be discounted in advance". Such phrases apply to a certain state of mind, but it is infelicitous to label that malady Classicism, particularly when the writer is discussing Romanticism at the same time, neglectful of the bountiful debate over those two terms. Classicism in the broader sense seems hardly distasteful to Professor Perry, who writes sympathetically of the Classical Humanism of the Renaissance. He should be more careful of his terms.

For a Humanist will pick his words nicely. He is versed in that "careful analysis of the elusive meanings of words" of which Professor Chinard writes entertainingly. It is perhaps not unnatural that Professor Perry should find semantics a subject "easily dehumanized", or declare that "the acquirement of the rudiments of a language is not in itself a humanizing experience". I can think of a course in beginning Greek at the end of which three college students thanked their master for introducing them to true humanism. I should hate

to call my friend Professor Perry, despite his admiration for the masterpieces of old, an Anti-classicist—in the usual sense—and yet he seems somewhat to apologize for the humanism of the Renaissance, "because it knew no other". It was "an historical accident" that the past to which they turned reverent eyes was "the period of Graeco-Roman civilization". "But what Latin and Greek meant to the Italian humanists they can never mean again to any other time or place. To other ages they must be deader languages, from a remoter and more alien past". It is curious for a philosopher who has shown a certain condescension towards history to view human attainments in art and letters *sub specie temporis*. It is exactly the attitude of the Anti-classicists in the *Querelle des Anciens et des Modernes* of the seventeenth century: to those now forgotten "modernists", literary significance fades away as the ages roll on. One sentence in Professor Panofsky's essay settles all this: "From the humanistic point of view, human records do not age."

At the end of his essay, Professor Perry considers with acumen how many of our college subjects today may be made safe for humanism. The remarks on the natural sciences may open the eyes of their devotees in wonder. No "Classicist" could arouse more unquenchable laughter among them. Gone is the time, the writer mourns, when the man of science depended on analyzing the evidence of his senses, when he "visited and observed nature in its own habitat. Now he carries specimens of it into the laboratory." What is the difference, if modern instruments, products of the *vivida vis animi* have marvellously improved the observer's eye-sight? He still observes with eye and mind, and discovers both metagalaxies in the heavens and solar systems in the atoms. To what should the humanist return, to "nature-study"? The spirit of such remarks on science has the quaint flavor of another age, that of the nineties of the last century. Both the scientist and the modernist will find observations more to his liking in the other essays of this book, notably in the witty and original contribution of Professor Panofsky.

The subjects most obviously humane, or if inhumanely treated, most capable of humanization, are, according to Professor Perry, history, literature, the arts, and philosophy. With studies accessory to literature, he has less sympathy; such are phonetics, grammar, linguistics, comparative philology (what the difference is between the last two is not made clear), and semantics. He finds that the history of philosophy "especially when associated with the study of texts" can breed pedants. But humanists in the past have studied texts to find what thinkers really said. Though concerned, like Plato, with seeking the one in the many, they have not been disposed to detach their fancy from mere actualities and watch it soar, balloon-like, into the upper sky. Further, in fighting somewhat shy of the social and the

natural sciences, Professor Perry presents a narrower programme than that of traditional humanism, as mirrored, for instance, in Cicero's essays or in Virgil's reflections on the ultimate issues of life.

But of course Professor Perry would not utterly cast these sciences out. They may stay if reformed. And here is where philosophy comes in. If they or their sister-disciplines, history, literature, and the fine arts become cluttered with mere facts and specialities, philosophy is ready to purge and rehumanize them. This is indeed a welcome suggestion, for it promises a new use for philosophy. In the ancient scheme, it was the crown of all the arts, the goal of universal contemplation to which they led. In these days of ours, when the natural sciences have separately blazed so diverse and so brilliant paths into the unknown, it is a question whether a philosopher can retain the throne, like St. Thomas Aquinas in the Giottesque fresco at Santa Maria Novella. Unless he comes into his estate by the path of science or of mathematics, he must go somewhat on hearsay. He can no longer undertake to sum up the knowledge that discovery has won, or be, *par excellence,* in Royce's phrase, an examiner of presuppositions, unless as Molière's momentary gentleman declared:

"Les gens de qualité savent tout, sans avoir jamais rien appris." But here is at least an honorable employment for philosophy, as the watch-dog of humanism. Indeed, it might profitably be restored in the programmes of our colleges to the place that it formerly held.

The crying need of education in our day, as all the essayists as well as Dean Root and Professor Greene in their introduction imply, is directness of aim and unity of purpose. It is highly unfortunate that the term "humanities" has been restricted to the subjects of Arts and Letters. Is the study of the natural world or of human society inhumane? A Plato, a Cicero, a Virgil did not think so. For a guess, the term was given a new meaning by the directors of our munificent directors for promoting research; it served to denote what was not already included in the fields appropriately designated as natural and social sciences. There is some danger, since most of the vital research in our times is done in those subjects, that investigators there may regard the domains whence they are supposed to be excluded not as the humanities but as the femininities. The *reductio ad absurdum,* as Professor Krey points out, was reached at a great American university where history, by a too serious application of the judgment of Solomon, was bifurcated into a Social Science at its modern, and into a Humanity at its ancient, end. All the arts, as Cicero declared, are united by a common bond. All are liberal and humane when directed to the enlargement of the human spirit. All, then, are humanities.

We well may need, as Professor Perry observes, a new humanizing of various subjects taught in college. The remedy implicitly suggested is to reduce specialization. With specialization itself, no humanist in-

terested in the progress of knowledge would interfere. Any young mind that desires to track a thought to its lair should never be repressed. But in general, the place for research is in the Graduate School, where it is best pursued when preceded by a training in the liberal arts. It is a frequent mistake to suppose that these arts were designed in antiquity, the Middle Ages and the Renaissance to include all that could be known. On the contrary, they were intended to humanize the mind before it started on its intellectual quest. The quest itself was endless, as it is today.

All of the essays touch on the difference between useful and useless branches of learning, with the implication, now and then, that the flair of humanism vanishes if a subject is pursued for its utility. The issue, if raised in this form, leads to an unfortunate misunderstanding. If the "Humanities" take pride in their lack of utility, those of the other schools will be more than ever disposed to place them in the repository of useless things. As a matter of fact, the liberal arts were never to the best of my knowledge, called *inutiles*, in antiquity or the Middle Ages or the Renaissance. They were indubitably vocational, a prerequisite for the vocation of a statesman, a cleric, or a courtier. They are useful in any calling in life today. A youth whose nature has been enriched and humanized by studying the achievements of the great minds of old in letters or art or science or philosophy is bound for this reason to succeed in his career. Personal traits have a commercial value in any occupation. But the thought of the learner should not be set on successs. As a humanist of the Middle Ages declared: *propter se ipsa appetenda sapientia*. And yet while seeking the Kingdom of Humanism he will find that all those other things will be added unto him—that may mean actual wealth, or in any event the discovery of that abiding wealth which is nothing but contentment. Such a course in the arts is not useless.

The distinction to be drawn among the disciplines is not between the useful and the useless, but between the general and the special; for the acquisition of knowledge should be accompanied by broad outlooks all along the way. We may also distinguish between a good purpose and a bad. Humanism is indeed wrecked if the learner's ambition is for monetary success. It is no less wrecked if he is chiefly occupied with his own interests of mind, with deep plumbings of his intellectual capacities and with the discovery that he is not capable of what he finds unlovely or too hard. Humanism, like Theology, as Professor Calhoun implies, is concerned with the saving of souls. Souls are not given their freedom by letting them run wild.

The prize discourse in this notable symposium is the last. Professor Chinard's essay on "Literature and the Humanities", distinguished by the clear thinking, exquisite style, common sense, and the delicate irony characteristic of the French cultivated mind, is so full of wise ob-

servations and trenchant criticism of current fads, that the reviewer would not spoil it by quotation. The reader will find answered there all, or almost all, the questions raised elsewhere in this symposium. In a word, it is a disclosing, step by step, of the pleasant regions to which *l'explication des textes,* like the flower in the crannied wall, may lead. Perhaps we are ready to return to texts again, to the texts of Greek and Latin literature as the bed-rock prerequisites of a humanistic education. A vision of a new education, new and old, rises irresistibly in the mind as the argument of this thinker proceeds. We have seen of late a brave and increasingly successful attempt to restore a unified plan of Humanism made at St. John's College, Annapolis. There a selected group of the great writers and thinkers of the past, comprising a Faculty, as has been said, that will ever remain distinguished, introduce young minds to the sciences and the arts. Furthermore, these authors, ancient and modern, give their message in their own tongues—really, there is no other way. If somebody would kindly endow another small college, President Chinard with a Faculty of kindred spirits, fit though few, could prove that a modified programme of the arts and sciences leading to a communion with the great minds of the past, has something to say to our times. To provide a little excitement, the chair of Philosophy should go to Professor Perry.

E. K. RAND

HARVARD UNIVERSITY

REVIEWS OF BOOKS

Foundations of the Unity of Science, Vol. I. No. 2: *Foundations of the Theory of Signs*. By CHARLES W. MORRIS, No. 3: *Foundations of Logic and Mathematics*. By RUDOLF CARNAP. No. 4: *Linguistic Aspects of Science*. By LEONARD BLOOMFIELD. Chicago, The University of Chicago Press, 1938. Pp. viii, 60; viii, 72; viii, 60.

These three monographs are part of an interesting and valuable attempt to deal, from a unified standpoint, with many perplexing problems which concern the nature of logic, mathematics, and correct scientific method. Most noteworthy is the important rôle which semantics is allowed to play in Carnap's *Foundations of Logic and Mathematics*. In this he follows Morris and several Polish logicians (especially Tarski). Carnap had previously restricted his formal investigations almost wholly to syntax, but he has now ostensibly given up the view that thing-words do not denote, if, indeed, he ever seriously held such a view. Even properties are now permitted to be denoted by certain sorts of words, and Platonic realism does not contend for much more than this.

With regard to the controversy about conventionalism, Carnap attempts to strike a compromise. He declares that the conventionalists and the anti-conventionalists are both right, but simply misunderstand each other. The conventionalist holds that the setting up of a purely formal uninterpreted calculus is mainly a matter of convention and is in many respects independent of any interpretations later to be imposed. On the other hand, the anti-conventionalist holds (or means to hold) that if we employ *already interpreted* symbols, as in a "semantical system", we are not free to retain such an interpretation while at the same time introducing some different interpretation.

This seems to be a reasonably satisfactory solution, but there is a more fundamental allied difficulty on which Carnap is not clear. This is the question as to what extent (if at all) the nature of a metalanguage is a decisive factor determining the nature of an object-language (where, of course, the object-language is part of the subject-matter which can be defined or described by some one who uses the metalanguage for purposes of discourse). Sometimes Carnap speaks as if the rules of a semantical system might be regarded as merely a device for translating sentences of the object-language into sentences of the metalanguage, so that the structure of the object-language would depend almost wholly upon the structure of the metalanguage. This would agree with his earlier nominalistic and conventionalistic views. Semantics could thus be regarded as primarily a study of the

formal relations between metalanguage and object-language, or, more generally, as a study of the various formal relations between formalized languages, while the relation of metalanguage to object-language would be just a special case. At other times Carnap speaks as if the nature of an object-language (at least with respect to its semantical properties) were not dependent upon the nature of the metalanguage at all, but as if the "semantical rules" for the object-language were to be considered *absolute* truth-criteria for its sentences. In this view a semantical rule could not be identified with the sentence expressing such a rule, but rather with the meaning or content of such a sentence. In this way the truth-criterion would fail to be a function of syntactic peculiarities of the metalanguage. Indeed, it should be possible to express the selfsame semantical rule in various structurally different metalanguages.

Perhaps Carnap intends to take some intermediate position between these extremes of nominalism and realism, or perhaps he would even try to reject the whole issue as an illusory problem. In any case he is sufficiently vague to be able to retreat toward one extreme or the other, as circumstances may dictate.

In connection with the question of the dependency of the nature of an object-language upon the nature of metalanguage, it is instructive to observe that some of Carnap's key semantical concepts (applying to sentences of the object-language) are defined by use of analogous concepts applying to sentences of the metalanguage, so that if the latter semantical concepts are not already understood, the former certainly will not be understood. For example, he says: "If the semantical rules suffice to show that T_2 is an implicate of T_1 we call T_2 an *L-implicate* of T_1" (14). Here the phrase "suffice to show" bears the same relation to sentences of the metalanguage that the phrase "L-implies" bears to sentences of the object-language, and an understanding of L-implication requires a previous understanding of "sufficiency to show". Clearly, then, L-implication can throw no important light upon the nature of logical sufficiency of conditions, and therefore fails in its main purpose. Lewis's analysis of strict implication seems to avoid any such circularity.

The later part of Carnap's monograph deals with mathematical and physical calculi and their interpretations. Here is shown how the important concepts elaborated in the earlier portions can serve to make intelligible many fundamental procedures of modern science.

In Morris's *Foundations of the Theory of Signs* we are given a useful outline of semiotic and its three subordinate disciplines: pragmatics (the study of the relation of signs to interpreters), semantics (the study of the relation of signs to the objects to which

signs are applicable), and syntactics (the study of the relations of signs to one another). Some terms of semiotic, such as "sign", are "strictly semiotical" and cannot be defined within any one of three subordinate desciplines apart from the other two. Much emphasis is placed upon the importance of semiotic as a unifying influence in science, but it is admitted that semiotic itself is still far from maturity and systematization. Morris's outline of the subject is *only* an outline, and one that is frankly subject to change in the light of any new discoveries in syntactics and semantics.

This being the case, the time seems hardly ripe for maintaining, as Morris does, that many of the major philosophical problems can be solved or explained away by recourse to semiotic. Let semiotic first put her own house in order. As long as the semantical paradoxes remain without satisfactory solutions, how can even semantics be made an authoritative ground for accepting or rejecting some philosophical theory about, for example, the nature of universals? Yet Morris seems to feel that he has, in the main, settled the more difficult perplexities concerning universals. He has actually only touched the surface. The real difficulties are closely tied up with such unsettled questions as the validity of Russell's theory of types, and the acceptability of the axioms of reducibility, infinity, and choice. There is no certainty that Morris's own tentative version of semiotic, when carefully formalized, might not contain a serious formal paradox of some sort. For example, a semiotical analysis of the term "semiotic" might easily lead to an abyss of contradictions because of the circularities which would be involved. Such tentative formulations are very valuable if they do not claim too much or make their claims prematurely; otherwise they may be misleading.

In Bloomfield's *Linguistic Aspects of Science* many indications of the importance of linguistics for science are presented, and the monograph serves as an authoritative introduction to linguistics. Bloomfield believes that if all scientists could learn to observe language properly, there would be no need for the postulation of "mental factors". Mental categories, and philosophical concepts generally, would be replaced by linguistic categories.

While appreciating the importance of careful analysis of speech forms, one is inclined to feel that Bloomfield, like Carnap and Morris, has not yet faced the most difficult problems. In any case, the work of the logical empiricists is important not so much for their negative criticisms, which are likely merely to reflect misunderstandings on the part of the critic himself, as for their positive and fruitful scientific insights and theories.

FREDERIC B. FITCH

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The History of History. By JAMES T. SHOTWELL. Volume I. Revised edition of *An Introduction to the History of History.* Columbia University Press. 1939. Pp. xiv, 408.

In 1922 Professor Shotwell published *An Introduction to the History of History.* Originally designed as an introduction to a series of volumes entitled "Records of Civilization: Sources and Studies", it turned out to be an extended discussion of historical writing in ancient times. Under the above title, the volume is now republished with some revision and additions. Apart from the correction of obvious errors, such as "Fabian" for "Flavian" emperors, the revision consists chiefly of the insertion of some passages by Professor J. W. Swain, the most important being those (197, 207, 211) which do something to soften Professor Shotwell's judgment of Thucydides. The principal addition is an article published by Professor Shotwell in 1913 entitled "The Interpretation of History", which is now included as Chapter II. A long commentary on the interpretation of history from the point of view of a "new" historian might seem out of place in a work devoted to ancient historiography, but in fact it fits into the work as if it had been originally written for it. The reason is that the work itself is not primarily concerned with ancient historiography: it is essentially a disquisition, not infrequently verging on the hortatory and the edifying, on history from the point of view of modern knowledge and technique—a disquisition in which the ancient writers for the most part serve the useful purpose of demonstrating that in two thousand years much progress has been made in the art or science of writing history.

This approach to historiography, useful as it may be, is likely to generate in the historiographer a certain condescension, so that the reader is left with the impression that he ought to disparage the ancient writers for limitations for which, nevertheless, they cannot, having unfortunately lived before the time of "scientific" history, be held responsible. Professor Shotwell is an adept at conveying this impression, and nowhere is he more successful than in dealing with Thucydides. His discussion of Thucydides consists largely in an elaboration of the points in which that historian fails to measure up to modern standards. The final conclusion is that "the greatest historian of antiquity was uncertain in two of the major requirements of the modern historian: on the one hand, the mastery of time perspectives, the unravelling of the past; on the other hand, measurement of the forces material and social which modify, if they do not govern, the course of human events" (109). These are the limitations. However, Professor Shotwell is at pains to assure us that "it could not have been otherwise"; Thucydides "did not have the chance to measure economic forces or chronology".

All true enough, no doubt. But I am tempted to apply to Professor Shotwell's book the phrase he applies to Thucydides' "History"—"the tale he tells is not what we most wish to hear". Noting the limitations of ancient historians by the standards of modern knowledge and technique is well enough, but it is after all not what we most need to learn from the historiographer. What we should most like to know is why, in the Athens of the fifth century B.C., a man of Thucydides' intellectual power (surely the equal of any modern historian) necessarily had the qualities and limitations which he displayed. Why, for example, were the "time perspectives" in which he looked at his world necessarily foreshortened, and what effect had this restricted frame of reference upon his thinking? Why did the Peloponnesian War necessarily appear to him to be an event of supreme importance in world history? Why did he necessarily think that "this is a world in which men willed and wrought, of their own account"? Why was fortune, the "unknown quantity", in his age necessarily "conceived in terms of religion, not of economics"? The answers to these questions would properly place Thucydides in the culture of his time, and thereby disclose the supreme achievement of "the greatest historian of antiquity". That achievement was to realize, for the first time clearly and without qualifications, that is is worth while to determine, on the basis of credible evidence, what as a matter of fact did actually happen, and to set it forth irrespective of whether the story is edifying or in accord with what is conventionally believed or authoritatively taught. To realize this clearly for the first time was to distinguish clearly for the first time between fiction and history, between events that are imagined and events that have occurred. To make this distinction in our time is a simple matter; to make it in Thucydides' time was an epoch making contribution to the development of human intelligence—a far more important contribution than, for example, the theory of the economic interpretation of history which, in some "higher synthesis" brought to birth by the Dialectic, will very probably turn out to be only relatively true after all.

CARL BECKER

CORNELL UNIVERSITY

The Psychology of Art. By ROBERT MORRIS OGDEN. New York, Charles Scribner's Sons. 1938. Pp. xviii, 292.

Dean Ogden holds firmly to the view that behavior is the subject matter of psychology. Hence the psychology of art concerns artistic behavior. There is the behavior of the artist and the behavior of the appreciative audience or spectator. Both behave with aesthetic enjoyment. In order to describe this behavior recourse is had to what was originally a Cartesian distinction between distinct and confused ideas, both of which might yet be clear or vivid. This enabled Leibniz

and Baumgarten to define the aesthetic attitude as one wherein ideas, though clear, remain confused. A characteristically introspective doctrine is now skilfully translated into the idiom of behaviorism. The effect is both artistically pleasing and historically amusing. The fundamental concept of behavior has now inherited the functions, without the remote awkwardness, of the Cartesian Deity. The account of behavior is thus rid of mechanistic limitations originally traceable to Descartes. "All primitive behavior is aesthetic. It becomes artful in moments of hesitancy" (7). In such moments means may be related to ends, and, eventually, the perfection of their relatedness prized for its own sake. Thereby aesthetic behavior becomes artistic.

The author's treatment of Beauty seems less skilful and less clear. He agrees with Alexander in calling it a value, but adds at once: "that is to say, a right and appropriate behavior . . ." (17). Several sentences also begin: "Beauty is the experience. . . ." I cannot but think that the reference to behavior and experience only blurs the issue here. The difficulty appears to reside, not so much in recognizing the relational character of beauty (which constitutes the agreement with Alexander), as in specifying the terms so related. For Alexander these were material objects on the one hand and on the other a satisfied impulse of constructiveness, "when that constructiveness has become human and contemplative". Ogden would substitute "figure-ground patterns" for material objects. His account of the artistic interest is, I think, fundamentally in agreement with Alexander's, though couched in language and supported by examples reminiscent of the literature of Gestalt psychology.

All this concerns the first chapter, and indeed it is here that the reader is most likely to encounter difficulty. Once the main subject-matter of the arts is reached he may expect fairly plain, though never dull, sailing. Music, Poetry, and Visual Art, are dealt with in succeeding sections of the book, providing the student with a detailed and sometimes fascinating treatment of the technical problems of design and craftsmanship. There is a notable discussion of the difference between static and dynamic symmetry in architecture and painting. Whether or not dynamic symmetry be the natural result of applying geometrical rather than arithmetical procedures in design, it is apparent that it holds an added appeal for the author, as illustrating a unity not resolvable into parts independently separable. Thus in addition to furnishing possible clues as to the behavioral (*i.e.*, procedural) origins of mathematics and art, a study of dynamic symmetry shows art 'imitating' growth in nature; "the whole dominates its parts as an organism dominates its several organs" (185).

The concluding section of the book is devoted to aesthetic education. Its text is taken from Plato: "The whole of a man's life stands in need of a right rhythm". The guiding ideas are patterned after the

eurhythmics of Dalcroze. Clearly Odgen is concerned with more than instruction in the several arts. The theme enlarges, beyond the strict limits of the volume's title, into the art of education and the art of living. It is refreshing thus to be reminded that scientific method in education is not all. But both emphases may be partial; a method is not an entire philosophy. Since Plato has been cited, and Greek method praised, it were well perhaps to raise again his problem as to the place of the artist in civil society, remembering his perverse solution. There are artists and others in exile today, for whom the rhythm of living is lost. Eurhythmics for refugees? Is a "right rhythm" in life possible without a "right direction" in society?

H. M. ESTALL

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L'idée de l'homme dans la neurologie contemporaine. Par WALTER RIESE en collaboration avec ANDRÉ REQUET. Paris, Félix Alcan, 1938. Pp. vi, 100.

In these three essays the author discusses the ideas of man as an organism, as they are represented by three prominent exponents of contemporary neurology: C. v. Monakow, a neurologist, S. Freud, a psychoanalyst, and K. Goldstein, a clinical neurologist of the Gestalt school of thought.

The organismal philosophy of C. v. Monakow is deeply imbedded in his neurologic concepts which deal with the total functionings of the organism. C. v. Monakow takes departure from his classical work on the brain in which he refuted the doctrine of rigid localization of cerebral functions, and showed the functional interdependence of distant parts. This indicated that total organismal dynamics were involved and not merely those of local areas. From this the concept of total dynamic, organic unity was evolved. It covers the entire span of unbroken and harmonious evolution from the simple unicellular organism to the more complex hierarchies of tissues and organs, and the total organization of man. Underlying this consistent integration there are two general principles. The principle of a *hormé* is introduced to account for the basic form of biologic integration in all its primal elements working upward for the benefit of protoplasm in all its forms and organizations. The second principle, which v. Monakow calls "synéidésis", is a large one which deals with the more complex integrational processes of the organism. It is a higher temporal governor of the organism as a whole and includes innate as well as the more conscious government of the organism at various levels of integration. Synéidésis represents this totalitarian unity of the organism.

The method of S. Freud is also a genetic one. It lays hold of the historic development of man from the standpoint of the stress of

inner conditions. Psychoanalysis is a method for discovering the hidden and significant experiences of the past which regulate behavior of the present. The conscious ego evolves from the reflex, automatic, and undifferentiated subconscious *id*. The individual is a result of the historic evolution of all his inner urges. In revealing the evolution and development of emotional life, Freud has contributed to the understanding of certain aspects and motivations of the human organism.

The ideas of Goldstein are derived from a psychological analysis of patients suffering from cerebral diseases or injuries. The application of the psychologic methods to the study of such cases is a relatively new approach. Cerebral and organismal functions have an important total organization. The total response is the dominant thing. Between the parts and the whole there is a general reciprocity, but the whole is the more important. Modifications of tensions at one spot induce changes elsewhere. Properly speaking there is no isolated function, all functions are interrelated. Goldstein's general concept, like that of the Gestalt school, is organismal.

These essays of Riese and his collaborator deal with an abundance of material handled in an intimate, critical, but often confusing manner. Lack of lucidity and an attempt at a philosophic interpretation have in general obscured the issues.

J. W. PAPEZ

CORNELL UNIVERSITY

Whence? Whither? Why? A New Philosophy Based on the Physical Sciences. By AUGUSTA GASKELL. Introduction by F. K. RICHTMYER. New York, G. P. Putnam's Sons, 1939. Pp. xx, 21-312.

This volume is divided into three Parts. The first Part is a sketchy survey of the history of scientific, philosophical, and theological ideas. The second contains the author's answers to the questions of the title. And the third considers the relation between the "new philosophy" and the teachings of the Bible.

The primary aim of the book is to debate the riddle of existence in the light of contemporary science, and such an aim is entirely praiseworthy granting that the issues are debatable at all. On the authority of Professor Richtmyer, the author "possesses a broad and correct grasp of the essential facts and theories requisite for her purpose", at least in the physical sciences. And there is evidence that she has read widely in the literature of other fields. So it may be said that the argument moves within the context of a fairly competent acquaintance with the results of recent scientific inquiries.

The argument, however, remains far from convincing. Numerous examples might be given, but the following must suffice. From the undoubted fact that "mind and consciousness, as displayed in man" are characteristics of the later stages of organic evolution, it is said

to follow, as if it were obvious, that "the primary condition was one characterized by Mind and Consciousness" (p. 210; the capitals are in the original). And from this it is further inferred that the "primary condition" is identical with God. "Since the earth's cyclical process is but one instance, or a fraction, of the entire cosmic process, as the earth is but one infinitesimal part of the universe, which is unquestioningly held by all students [*sic*] to be one. . . . Given the characteristics of Mind, of Consciousness, of being one, and we have The One, God" (*ibid.*). Again, in the argument for immortality the burden is borne by a verbal substitution—the substitution, namely, of "the Z-system" (the name given to the assumed "intra-atomic organization" of living matter, which organization is called "peculiar" but not further specified) for such traditional words as *life* and *mind*. This verbal interchange is mistaken for a clarification of the factual issues in debate, and the argument is carried forward on the basis of that assumption. It may perhaps be said that such procedure is not uncommon in this field of inquiry, but it is none the less fruitless on that account. What is accomplished by it, here and generally wherever it is employed, is the substitution of one expression of ignorance for another.

In his Introduction to the volume, Professor Richtmyer writes: "The reader who approaches Mrs. Gaskell's book with an open mind will find it interesting, stimulating, and thought-provoking". This estimate may be warranted, but it is certainly generous. Such a reader, if he happens to be critically inclined, will also find in the argument other examples like those noted above.

G. WATTS CUNNINGHAM

CORNELL UNIVERSITY

Reality. By PAUL WEISS. Princeton, Princeton University Press, 1938. Pp. x, 314.

As the title of his work indicates, the intended scope of Professor Weiss' *Reality* is comprehensive. In it he pretends to circumnavigate being; and that in the course of three hundred and fourteen pages. As a consequence, his treatment of fundamental matters is perforce frequently elliptical, and sometimes rather cavalier. This alone would make difficult, if not quite impossible, anything like an adequate brief review of this contribution to contemporary philosophy.

The work opens with a chapter on Method. "A philosophic method", we are told, "is at once descriptive and integrated, dogmatic and critical, discontinuous and circular, consistent and self-validating". Philosophy is dogmatic in that it begins in the unreflective perceptions and naive beliefs of the everyday man, who is at the core of every single student of philosophy. It is critical in that the theory of perception which arises out of sustained reflexion on these naively accepted matters leads to an epistemology that is found to presuppose

an ontology. These deliverances of reflection may be subjected to tests that are both internal and external. In this procedure, "Logic is an aid, but more important is that common-sense philosophic scheme which lies at the heart of every mature man's being, an ontology and an epistemology as already together . . . ".

A chapter devoted to a survey of several theories of perception and their alleged short-comings serves to introduce Professor Weiss' own views of this subject. Perceptual elements are "the indicated" ("the 'it' about which articulate discourse pivots"), "the contemplated" ("a present, sensuous, intelligible, extensive, intensive unity . . . a *gestalt* . . ."), "the adumbrated" ("the dynamic, singular lilt of a thing as unfolding itself in time") and "the given". A perception is a synthesis of perceptual elements in judgment. An investigation of the nature of perceptual judgments leads us from perception to inquiry and the basic rational disciplines.

In the view of Professor Weiss, art no less than science is concerned with questions about the nature of the real. "For each the ultimate goal is the understanding of present facts so as to make possible the understanding of any others. A study of the principles of possible transformation, by which this could be accomplished, is the object of mathematics and aesthetics". According to Professor Weiss, aesthetics has nothing to do with existence. "Aesthetics is art generalized and robbed of its concern with the existent. It is the mathematics of art —". Six definitions of mathematics are rejected in favor of the view that, "Mathematics is the science, which endeavors to formulate precisely that principle which will transform any conceived pattern or group of determinate entities into any other". These statements may suffice to indicate a large assumption that underlies the epistemology and ontology of this work. Professor Weiss appears to take it that questions as to the nature and the status of universals are matters into which an ontologist is not called upon to enter. He lays it down that the elucidation by aesthetics of the universals that are involved in the arts will yield an ultimate principle. Discovery of that principle is the goal of aesthetics. "Its goal is that principle which governs *all* principles of accumulative transformation, and which should be capable of yielding the transformational principles of mathematics by limitation" (Italics mine). The identities, similarities, and interconnexions which are to yield these transformational principles are described by Professor Weiss almost exclusively in terms of abstract nouns and adjectives. This procedure would seem to beg several questions as to the nature of universals.

Book II of *Reality* is entitled *Plurality and Process*. Some readers of it may feel that Professor Weiss is imbued with a confidence in the powers of dialectic that is rather surprising in a logician. He lays it down (on the whole rightly, in my opinion) that the law of noncontradiction "is at once a necessary truth and a structural consti-

tuent of all judgments and facts, conditioning every act and meaning". And he finds no difficulty in the way of concluding that "It is necessarily true that I and every other reality are contingent beings"; to take but one example. Since, according to Professor Weiss, the laws of thought are the laws of beings, it is difficult to see how X is X can be at once necessary and contingent. Moreover, it would seem that any unquestioning faith in the power of apagogic reasoning to demonstrate existential propositions *a priori* ought, among other things, to meet the arguments in that regard of Professor Wisdom.

This confidence in our ability to demonstrate existential propositions *a priori* seems especially to pervade the chapter entitled *Mellontological causation*. It abounds in statements about matters of fact, and in inferences about alleged causes, that are put forward without question. It would seem that, like other thinkers who have been deeply influenced by Whitehead, Professor Weiss fails to take into account the difference between a theory about the nature of causation, and an explanation of the rationale of causal inference. Neither one is equivalent to the other; as the mere history of the matter indicates. In the course of modern philosophy the two problems came to be dealt with separately by Leibniz and Hume. The negative conclusions about the validity of causal inference arrived at by La Forge, Cordemoy, and Malebranche were explicitly taken for granted by Leibniz who then proceeded to formulate in that connection a theory about the nature of causation. The same negative conclusions were adopted and improved upon by Hume in the course of his development of a theory about casual inference. A theory about the nature of causation, whether or not it claims to be "mellontological", may well fail to consider the logic of the rationale (if there be one) of inferences about causes and effects.

Professor Weiss would seem to take an unquestioning view of the nature and status of universals; and his faith in the capacities of dialectic to demonstrate existential propositions *a priori* has been vouchsafed him by powers that remain undisclosed. These considerations, among others, give rise to some doubts as to the relative success of Professor Weiss' ambitious undertaking. Nevertheless, it is an achievement in contemporary thought that is carried through with a sustained ingenuity in theory, and a versatility in matters of illustrative detail, that more than justify the breadth of its scope.

Ralph W. Church

Cornell University

The Philosophy of Plato. By Raphael Demos. New York, Charles Scribner's Sons, 1939. Pp. xiv, 406.

Professor Demos's exposition of Plato's philosophy has been influenced by Whitehead. The first of his four Parts, entitled "The

Creative Factors", collects cosmological factors from the *Timaeus* and the *Philebus,* and deals at length with the "receptacle", the Idea of the Good, the soul, and God, all as they appear in the latest rather than the middle dialogues. His second Part, "Reality", deals with being, selfhood, otherness, and relatedness, mainly as discussed in the somewhat earlier dialogues *Sophist* and *Statesman.* Only at the end of this Part does he give a chapter to "Forms and Things", thus indicating his judgment that the importance of the Forms in Plato's philosophy has been exaggerated at the expense of other "creative factors". Turning then to the middle dialogues, he deals in his third Part, on "Appearance", first with Plato's conception of images, and then with "Art and Beauty", "Visible and Ideal Beauty", "Language", and "Theory of Knowledge", the last being placed under this rubric because according to Plato all knowledge except the highest is either about images or at least by means of them. Only in his fourth and last Part, entitled "Man", does Professor Demos turn to Plato's practical philosophy. Here he deals with "Human Nature", "Degeneration in the Individual and in Society", "The Ideal of Reason" (which is mainly politics), and "Portrait of the Philosopher". Nearly all the middle and later dialogues are thoroughly exploited for this exposition, with two major exceptions: first, Professor Demos nobly declares that he does not understand the second part of the *Parmenides*; second, his strange account of Plato's ideal city gives the constitutional framework of the *Republic* supported with references from the *Laws,* and there is no account of the constitution proposed in the *Laws.*

Professor Demos recalls Whitehead not merely by the cosmology he finds in Plato, but also by his style. Instead of Plato's abundance of images and poverty of abstract terms we have here, as in Whitehead, a very great poverty of images and an immense abundance of abstractions set out in magisterial sentences. Professor Demos, however, does not handle this style with Whitehead's charm. He has a hypnotic habit of reiterating the key noun when a pronoun would be as clear. What might have been written as follows:

> The soul both moves itself and moves other things. On the one hand, it constitutes an inner city, enjoying its own being for itself. This is its intrinsic essence, as abstracted from other things into itself. On the other hand, it interplays with the community and its total environment.

is written by Professor Demos as follows:

> The statement that the soul moves itself and moves other things, defines, a dual capacity for the soul. On the one hand, the soul constitutes an inner city, enjoying its own being for itself. This is the intrinsic essence of the soul, the soul as apart, abstracted from other things into itself. On the other hand, the soul is in an interplay with the community and its total environment.

There is a great scarcity of argument in the book. Professor Demos rarely tries to persuade us that this is what Plato meant; he just tells us, and we are supposed to take it. He speaks as a pedagogue, not as a scholar to his equals. He does, indeed, often tell us that what he is about to say is *not* Plato's doctrine; but when he tells us what *is* Plato's doctrine, on some controversial point that has been much debated, he rarely gives a reason and rarely even tells us that there has been a controversy.

In page after page of this book Professor Demos seems to me to have retrograded to the level of interpretation practiced by Plotinus, the level, that is, of those who have not realized that you can get any doctrine out of any author if you are willing to assume these two things: (1) that whatever his words imply to you they must have implied to himself, (2) that whatever abstractions occur to you as suitable classifications of what he said must have occurred to him too. Professor Demos generously splashes modern abstractions on to Plato's words; for example, he refers to Plato's Ideas for a few pages as "universals", and then for the next few pages as "concepts". Plato enumerates a collection and then says: "We must put all these things into the class of the Unlimited, as into one thing" (*Phlb.* 25A). That is sufficient for Professor Demos to say that "in the *Philebus* Plato points out that the Unlimited has unity; which would mean that it participates, by its very nature, in Number, and in the Limit." "Plato's critique of poetry in the *Ion* is founded primarily on his conviction that the trait of *selfhood* is absent from the poetical frame of mind"; on the contrary, Plato never even thought of "the trait of *selfhood*". "If the receptacle is capable of being persuaded by God, it must be because it can understand God. The conclusion seems inevitable that the receptacle has the potency of reason." Far from inevitable, because Plato may not have seen the implication. (Every proposition has an infinity of implications, and no one ever sees them all. Implications that are obvious to later generations are sometimes invisible to earlier ones.) Far from inevitable, even if the premise were rigid; but the premise itself is only obtained by adding to Plato's statement, which was that *necessity* is persuaded by God, the assumption that Plato identified necessity with the receptacle, an assumption which Professor Demos makes without warning us that it is not even mentioned in the two best commentaries on the *Timaeus*.

Besides a mass of interpretations which I reject, Professor Demos sets down doctrines which he explicitly declares not to be found in Plato. These are offered, I gather, as natural extensions or completions of Plato's own view, worth making because Plato's view is in general extremely valuable. Thus, although Professor Demos calls his book "The Philosophy of Plato", and although he is in most passages con-

cerned to tell us what Plato thought, yet the mass of his misinterpretations, and the number of places where he alters or extends Plato's views, with or without admitting that he is doing so, make the whole into a sort of Whiteheadian Plato rendered systematic and complete, with every gap filled, every corollary drawn, and every linkage made. As a guide to Plato's thought, then, the book is very misleading. But Professor Demos half wishes to present it as a philosophy for our times. I fear that few will find it useful in that way either. The original Platonic theme is more modern, more stimulating today, than Professor Demos's variations.

RICHARD ROBINSON

CORNELL UNIVERSITY

Naturalism. By JAMES BISSETT PRATT. Powell Lectures on Philosophy at Indiana University. DANIEL S. ROBINSON, Editor. New Haven, Yale University Press, 1939, Pp. x, 180.

The author characterizes naturalism in terms of aim, method, and system. However, since the crux of his argument is the contention that relatively crude naturalistic systems are constantly being replaced by more critical ones, system is for him of secondary importance. He tends to identify true naturalism with the singleminded attempt to discover the truth about the world, by the empirical method, and he criticizes all forms of mechanistic doctrine from this standpoint. Mechanism is inconsistent with naturalism because it is unempirical and rationalistic in overlooking most kinds of facts. It even succumbs to the will-to-believe in accepting an oversimplification whose chief attraction is its neatness, and thus betrays the scrupulously objective aim of naturalism. In a word, it is crude. His own conclusion, merely indicated, is that naturalism leads to religion, since the unprejudiced study of the world reveals the existence of purpose in nature. Reality is organic, and its immanent teleology forcibly suggests the view that there is a conscious mind at work in it. For the most part, however, the book is a brief survey and criticism of various naturalistic theories.

Although Professor Pratt says that naturalism is only one form of philosophy, in identifying it with the attitude of unbiased examination of all the facts he makes it practically all-inclusive. In this sense everyone could claim, as he does, to be a naturalist, since no one, it is safe to assume, believes himself to be prejudiced, or consciously wishes to ignore relevant facts. Granting the desirability of breaking down rigid classifications, a somewhat more restricted interpretation of the term in question would have clarified and strengthened the argument. It would have sharpened real issues, and given the reader a more adequate conception of why some philosophers, past and present, are usually called naturalists, while others are not.

OTIS LEE

VASSAR COLLEGE

Moses and Monotheism. By SIGMUND FREUD. Translated from the German by KATHERINE JONES. New York, Alfred A. Knopf, 1939. Pp. viii, 218; VIII.

Freud's *Moses* is a bold adventure in speculative thinking. This attempt to write a biography of the great liberator and founder of the Hebrew nation is in the main used as an occasion to work out and expand the author's well known theory of religion, as set forth in terms of Totem, Taboo, Repression, the "return" of what was Repressed, Racial Memory and other familiar Freudian phrases. The value and significance of the book will be judged and rated largely according to the reader's sympathy with, or antipathy to, Freudian theories in general.

The foundation-contention of the author is distinctly an interesting one. He presents the view that Moses was an Egyptian in blood and race and culture. He lived in the period of Amenhotep IV who changed his name to "Ikhnaton". This remarkable "reformer" and religious genius repudiated the polytheism and mythology of Egypt and introduced a refined and noble type of monotheism. Moses, according to Freud's theory, became a contemporary disciple of Ikhnaton, or possibly at a period after the great king's death. He absorbed this lofty conception of the One and Only God, who is God of the universe and who must not be represented by picture or graven image and who must be worshipped as a *spiritual* Being. When Ikhnaton's dynasty was brought to an end (probably by violence) and this attempt at monotheism was repudiated by priests and people, Moses, who had presumably been a person of noble birth, brought up in close contact with Ikhnaton, fled to the "Semitic tribes" that were living at the time in a section of Egypt, identified himself with them, became their leader, got them out of the country into the Arabian desert, circumcised them after the Egyptian custom, brought with him a large group of followers who became the Levites, and informed the minds of the Hebrews with this pure monotheism, inherited from Ikhnaton. But these "Semites" were difficult recipients of this lofty faith. They were often stubborn and recalcitrant, and finally they murdered Moses in a fit of revolt. Under some other leader who succeeded Moses a transformed and compromised religion was worked out with the volcanic and tribal god Jahve in place of the lofty Being of whom Moses taught them. This later Jahve-faith and legal system was slowly constructed in the great wadi region at "Quades"—the Biblical Kadesh Barnea. During the conquest and establishment in Palestine the Jahve religion was still more transformed under local influences, and the original high faith and the murder of Moses became "repressed" and a "submerged memory", though never completely "lost". The later lofty monotheistic religion of the prophets and of post-

exilic Judaism is due to the slow resurgence of suppressed racial memory, the "return" of the repressed factors.

This ambitious construction rests on an extremely slight and tenuous foundation of historical data. Moses may conceivably have been an Egyptian by birth, but the *evidence* for a reversal of the established tradition is lacking. The argument from the etymological meaning of Moses' name is weak and dubious. It is, of course, quite possible that some religious influences may have come to Moses from the monotheism of Ikhnaton, but Freud's Mosaic theory compels him to put the Exodus back a century earlier than the period in which scholars have been led by existing evidence to place it. It is by no means necessary to resort to Ikhnaton for the origin of Hebrew monotheism—for the "Great I am" of Moses' faith. There are many spiritual and philosophical geniuses besides Ikhnaton who have broken a unique way of thought to One Ultimate Reality.

The supposed "murder" of Moses, which is essential to Freud's whole theory, is quite obviously a "construction". He rests it largely on a so called "discovery", made by Ernst Sellin in 1922, of traces in the Prophet Hosea of a tradition that Moses was murdered in a rebellion of his stubborn and refractory people. One must already have the theory formed in his mind of Moses' murder in order to "find" it in Hosea. It is quite clearly a "discovery" made by "wishful thinking". One would need to "discover" much more evidence than has yet been found in Hosea or anywhere else to reverse the graphic and vivid account of Moses' death when he had brought his people to the border of "the Promised Land".

The elaborate "psychological" structure which Freud, after his usual manner, has built up on this slender basis of fact-material falls to the ground with a crash if the "facts" which he has elaborated have no historical basis. Each one of the contentions necessary for his theory may conceivably some day be established as facts, or at least may take on historical probability, but at the present moment they are in the main mental constructions and lack historical verification.

RUFUS M. JONES

HAVERFORD COLLEGE

DESCRIPTIVE NOTICES

Das organologische Weltbild. Eine philosophisch-naturwissenschaftliche Theorie des Organischen. Von OSCAR FEYERABEND. Berlin, Walter de Gruyter & Co., 1939. Pp. xii, 276.

This book comes strongly recommended by Hans Driesch. While the philosophic definition of "organism" is not new to those who have followed the vitalist's argument, the attempt to apply the concept of the organic within the realm of the natural sciences is unusually far reaching, extending beyond the applications in biology to the argument that even astronomical systems are organic. From both scientific and philosophic points of view Dr. Feyerabend shows himself to be competent to advance the cause of vitalism and he has done so. Perhaps Aristotle's entelechy will play a major rôle in tomorrow's philosophy of science. Whether or no, contributions such as this one must not be ignored.

ROGER W. HOLMES

MOUNT HOLYOKE COLLEGE

Das Seelische. Wider die Verdoppelung des Menschen. Von FRIEDRICH GEHRUNG. Berlin, Junker und Dünnhaupt, 1939. Pp. 120.

The Greeks thought of the soul as the life-giving principle. Because of its belief in immortality, Christianity insisted that the soul was a substance different from the body endowed (so Tertullian) with organs similar to those of the body. This dualism was forcefully restated by Descartes and resulted in much argumentation about interactionism and psycho-physical parallelism. The author rejects this bifurcation. He identifies the soul with the integration of the physical organism. As a watch may undergo much repair—perhaps gradually have all its parts replaced—and still remain the same watch because its organization is retained, so human organisms—which are also constantly repaired—and their souls remain the same because the peculiar organization, which constitutes their uniqueness, has remained the same.

ADAM ALLES

CAMBRIDGE, MASS.

La filosofia di Edmund Husserl. Per SOFIA VANNI ROVIGHI. Milano, Societa Editrice "Vita Pensiero", 1939. Pp. x, 174.

Beginning with Husserl's psychological debt to Bretano, Rovighi has given an able critical summary, well documented throughout, of the development of Husserl's logical theory. Anyone interested in a treatment of the forms present to logical operations, notably, the modes of signification present in act to discourse, will find this book helpful as a minor exposition of Husserl's position. The treatment of intentionality as presented by Husserl is carefully developed, but I do not think that Husserl has answered Kant's last and basic question as to how metaphysics is possible, within the confines of German idealism.

GEORGE G. LECKIE

ST. JOHN'S COLLEGE

Le premesse metafisiche della dottrina di G. Del Vecchio. Per VITALE VIGLIETTI. Napoli, "Lo Stato Corporativo", 1939. Pp. 96.

In this study of G. Del Vecchio, Viglietti judges that the theory of legal right, faced with the paradoxes of German idealism, requires the idea of man's essential nature. An age which has translated *nature* into *evolution* and reduced *reason* to *experimental psychology* faces Viglietti with ironical misapprehension. Let us say, however, at once that Viglietti is searching rather for the substance of right than for its pragmatic procedures, because he holds the first to be the formal condition of the second. Primarily, he asks: is it possible, without taking recourse to the transcendent, to adjust the moral order to the natural order. Nature, substance, and person are three aspects of the same being. *Phusis* is essence as interior principle underlying the formal operations of substance, and man is a *res naturae* in substance, formality, and operations. Therein resides man's dignity, and therefrom is derived the juridical quality of person. Natural right is intrinsic to man, since the formality governs the operation. To this position is joined the first thesis of St. Augustine that *in interiore homine habitat veritas.* Truth resident in the essential operations of man defines good and makes man to be an analogy of all men. From man's essential identity is derived the principle of extensive alterity whereby man's natural duty makes man's natural right and thus humanity's natural right. Viglietti's non-reductionism runs counter, I believe, to the present tendency of legal theory in this country.

GEORGE G. LECKIE

ST. JOHN'S COLLEGE

La conduite humaine et les valeurs idéales. Par DOMINIQUE PARODI. Paris, Félix Alcan, 1939. Pp. 138.

This study in value-theory by the honorary inspector-general of national education in France is the sequel to a treatise entitled *En quête d'une philosophie* (1935), wherein the author had developed his idealistic thesis that spiritual activity is the foundation of reality. In the present work he applies his idealism to explain his normative value-theory in general and the three classic categories of value, namely, the true, the beautiful, and the good. According to his metaphysical point of view, every idea is an ideal at the same time; the true, the beautiful and the good are the ultimate laws governing the exercise of thought. The most original aspect of Professor Parodi's work is his doctrine that these three basic categories of value constitute a thesis, antithesis, and synthesis respectively. The true, which affirms existence as given, and always partially, is the thesis; the beautiful, which is complete and self-sufficient but fictional and indifferent to actual realization in space and time, is the antithesis; and finally the good, which involves the effort to introduce harmony and order into the objective world, is the synthesis, since it attempts to reconcile the real and the ideal, 'to make be that which is not but ought to be'. The final chapter of this lucid and comprehensive little book is devoted to an analysis of human evolution and the philosophy of history. If, the author argues, spiritual activity is the prototype of all the forces in nature (121),

then we may have some basis for seeking intelligibility in historical processes as well as finding ground for belief in ultimate evolutionary progress.

D. BIDNEY

YALE UNIVERSITY

La balance politique. Per J. ET P. DE LA COURT. Livre premier. Traduit du hollandais par MADELEINE FRANCÈS. Paris, Félix Alcan, 1937. Pp. xxvii, 126.

This is a translation of the first of thirteen books constituting a work under the above title, the fifth edition of which was published in Amsterdam in 1662. The translation was made in conjunction with a series of studies by the translator dealing with the life and work of Spinoza. Spinoza is known to have consulted *La balance politique* when he wrote the *Tractatus politicus.* One of the co-authors of the book, whose Dutch name was Pieter van den Hove, was a textile manufacturer and merchant and a writer on economics and politics who supported the bourgeois anti-Orange party. The book, in the fashion of the time, begins with a discussion of the state of nature, continues with an explanation of the origin of monarchy, aristocracy, and democracy, and concludes with an adverse criticism of monarchy.

H. JANZEN

HAMILTON COLLEGE

Dictionnaire de spiritualité. Fascicule VIII. Publié sous la direction de MARCEL VILLER. Paris, Gabriel Beauchesne et ses fils, 1938. Pp. 241-496.

The eighth volume of this Dictionary devoted to Mysticism, Asceticism, Doctrine and History, keeps the high level of the former volumes. It is scholarly research carried on by experts, and each article has an authentic quality. The present volume begins with *Cassien* and ends with *Chappius.* The two most important articles in the current number are those on Catherine of Genoa and Catherine of Siena. The former article (290-325) is in part by the Editor, Marcel Viller, S.J., though the main article is by Umile da Genova, O. M. Cap. The article is an original study, though it is influenced by and is in sympathy with Baron von Hügel's interpretation of the famous Saint. M. Marcel indicates her influence on Madame Guyon, Fénelon, and J. J. Rousseau. Catherine of Siena is given a somewhat less extensive treatment, but the article covers twenty-one pages (327-348). It is written by M. Gorce, O. P. The study of St. Catherine's mystical states and her psycho-physical phenomena will be of peculiar interest. There is a valuable article on "Spiritual Catechisms" (279-288).

RUFUS M. JONES

HAVERFORD COLLEGE

Principes d'une psychologie des tendances. Par A. BURLOUD. Paris, Félix Alcan, 1938. Pp. vi, 426.

This volume is an account of 'real psychological forces' which is built upon Maine de Biran's conception of an 'active subject' and displaying, according to the French tradition, such subjective activities as *intentions, tendances, schèmes,* and *idées forces.* Burloud rejects sensationism, be-

haviorism, associationism, and the easy psychobiology of organism-and-environment, and he chooses his way carefully between Janet and Freud, inevitably preferring the psychic tensions of his compatriot to the multiple mechanisms of the German Unconscious but preferring his own conceptual analysis of self-activity to either. By connecting *les tendances* with bodily movement, he seeks to unite the psychologies of bodily performance and of consciousness. While *Aktionstheorie, Gestalttheorie,* and the Würzburgian analysis of thinking are rejected, many of the facts collected thereunder are translated into the French phraseology of the author's system. If the historically-minded reader can accept the fundamental assumption of psychical forces and agents, he will be impressed by Burloud's subtle construction of mental systems and of 'the conscious life' out of the self and its tendencies. The entire work is more coherent and better knit than much that passes current in American treatises on psychology.

MADISON BENTLEY

LIBRARY OF CONGRESS

Philosophie und Politik. Von MAXIMILIAN BECK. Zürich/New York, Europa Verlag, 1938. Pp. 120.

The extraordinary dilemma in which the political philosopher finds himself to-day, must not, Mr. Beck modestly suggests, lead into a fatalistic acceptance of irrational avenues of speculation. In a curiously pedantic treatise in which the urgency of the problem is not always set forth as clearly as one might hope, Mr. Beck reaffirms the position of an intellectual isolationist. He need not have apologized at almost every turn for taking up "trivial" matter, but I doubt that in the light of recent events he will still be able to claim that, in order to maintain our democratic life against the forces of unreason and destruction, the philosopher should withdraw into the unassailable positions of a strictly non-political detachment.

VICTOR LANGE

CORNELL UNIVERSITY

Die deutsche Schulmetaphysik des 17. Jahrhunderts. Von MAX WUNDT. Tübingen, J. C. B. Mohr, 1939. Pp. xxvi, 288.

Professor Wundt thinks that all philosophical systems, even those of the great philosophers such as Kant and Hegel, have their creative source in the folk-life of the age in which they appear. For this reason even less striking philosophies may be of great importance because of their revelation of this life in a great age. Wundt therefore thinks that it is important to study the School Philosophy of the Seventeenth Century because he believes it expresses the inner spirit of the period of the Baroque. The stress in the thought of that century was not laid on man as the center of a pantheistic world-scheme. That was true rather of the Renaissance. Instead, in the Seventeenth Century, the center of reference moved away from man to God and to God as the source of all being. God became the pivotal point of a great organism in which man had his modest place. Reality is not mechanical but vital and dynamic. For this reason the Baroque philosophy is not a rationalistic world-view, but is rather a transcendental ontology. It is a metaphysics that throws light even on the theory of knowledge by

revealing the relation of all problems to the ultimate *Esse* or Being. Hence for Baroque philosophy as for Baroque art our world is not a perfectly transparent sphere of reality but is rather a dark scene illuminated here and there by bright flashes of celestial light.

JOHN S. MARSHALL

ALBION COLLEGE

Descartes correspondance. Publiée avec une introduction et des notes par CH. ADAM et G. MILHAUD. Tome II. Paris, Félix Alcan, 1939. Pp. 390.

The first volume of this new printing of Descartes' letters was noticed in the *Philosophical Review* for May, 1937 (XLVI, 346), where the plan is described and its relation to the original edition of Adam and Tannery is explained. The second volume includes letters between the dates October 3, 1637, and July 27, 1638. Again, as in the first volume, some additions have been made to the notes, and some letters have been added from Roth's edition of the correspondence with Huygens. The names of three or four correspondents, hitherto uncertain, have now been supplied. A French translation has been added to those letters which are in Latin. A good index of names, with notes, tells all that is known of the rather large number of persons mentioned in the correspondence.

GEORGE H. SABINE

CORNELL UNIVERSITY

The Moral Philosophy of Santayana. By MILTON KARL MUNITZ. New York, Columbia University Press, 1939. Pp. vii, 116.

In the first chapter, "Naturalism and Dualism", the author succinctly and critically restates Santayana's naturalistic metaphysics and realistic methodology. This is followed by a chapter on "The Life of Reason", in which the notable marriage of naturalism and idealism is described. In the final chapter, "The Spiritual Life", the author discusses Santayana's more recent mood, in which the philosopher takes flight from this miserable world into the realm of essence and spirit. The reader is left with the conclusion that there are two Santayanas: "the one being worldly, naturalistic, humanistic, Aristotelian; the other, otherworldly, supernatural, dualistic, Platonic". A book on Santayana might be expected to recall to the reader the saying of Spinoza's, which Santayana himself uses as a warning in his preface to *Character and Opinion in the United States,* that other people's ideas of a man are apt to be a better expression of their nature than of his; but not so this critical monograph. For its fair, concise statement, all admirers and readers of Santayana will be grateful.

MILTON R. KONVITZ

NEW YORK UNIVERSITY SCHOOL OF LAW

Lucretius: His Genius and His Moral Philosophy. By SCHUYLER DEAN HOSLETT. Kansas City, The Midland Publishers, 1939. Pp. viii, 48.

This small volume purports to give a discussion of the moral teaching and poetic genius of Lucretius. After an introductory chapter, the author discusses the poet's life, presents a summary account of Epicurus' career and teaching, and finally describes Lucretius' moral philosophy and poetic

art. It is difficult to envisage the reader whom the author had in mind. The book is without the slightest scholarly pretensions. It is composed of a number of obvious generalizations and half-truths accompanied by more than a few simple errors of fact.

STANLEY B. SMITH

BOWDOIN COLLEGE

Das Problem der Logik als Entwicklung des Prinzips der Heterothese. Von FRANK HLUČKA. Leipzig, O. R. Reisland, 1939. Pp. 80.

This is the third and last part of a theory of knowledge, of which the two preceding parts were occupied with *Das Problem der Personalität* and *Das Problem der Realität*. The general problem of all three parts is to find a common, immanent (non-transcendent) basis for knowledge of the realms of existence and of values. The particular problem of the present work is to determine what formal logic can contribute to the attainment of such knowledge. The author holds that immanent in its own construction logic must contain those basic concepts which are foundational to any system of knowledge, to any "logic of philosophy". And the principle which Hlučka employs to construct his table of "fundamental concepts" is Rickert's "Prinzip der Heterothese"—the principle which manifests itself in such pairs of concepts as that of essence and relation in the realm of being, or that of subject and predicate in language.

H. R. SMART

CORNELL UNIVERSITY

Paideia: the Ideals of Greek Culture. By WERNER JAEGER. Translated from the Second German Edition by GILBERT HIGHET. New York, Oxford University Press, 1939. Pp. xxxii, 420.

Professor Highet's translation completely masters the meaning of the German and converts it with unfailing resource into a fine swinging English of varied balance. He also adds a twelve-page index; the German has none. He gives Greek words sometimes in Greek and sometimes in Latin letters, following the original; those that he gives in Latin letters are printed sometimes in upright and sometimes in sloping type, on a principle that I have not detected. The sloping Greek type is quite discordant with the upright English, and frequently out of alignment. The English sloping type seems also frequently out of alignment.

RICHARD ROBINSON

CORNELL UNIVERSITY

The following books have been received:

The Continuity of the Platonic Tradition during the Middle Ages. Outlines of a corpus Platonicum medii aevi. By RAYMOND KLIBANSKY. London, The Warburg Institute, 1939. Pp. 58, Plates I-V.

Jurisprudence. By EDGAR BODENHEIMER. New York, McGraw-Hill Book Company, Inc., 1940. Pp. xiv, 358.

The Printed Writings of Jonathan Edwards, 1703-1758. A Bibliography. By THOMAS H. JOHNSON. Princeton, Princeton University Press, 1940. Pp. xv, 136.

The Ways of Things. A Philosophy of Knowledge, Nature, and Value. By WM. PEPPERELL MONTAGUE. New York, Prentice-Hall, Inc., 1940. Pp. xviii, 712.

Selections from Hellenistic Philosophy. By GORDON H. CLARK. New York, F. S. Crofts & Co., 1940. Pp. xii, 268.

Government and Economic Life. By LEVERETT S. LYON and VICTOR ABRAMSON. Washington, The Brookings Institution, 1940. Pp. viii, 66.

Experience, Reason and Faith: A Survey in Philosophy and Religion. By EUGENE GARRETT BEWKES, HOWARD BONAR JEFFERSON, EUGENE TAYLOR ADAMS, HERMAN ARNO BRAUTIGAM. New York and London, Harper & Brothers Publishers, 1940. Pp. xviii, 650.

A Philosophy of Science. By W. H. WERKMEISTER. New York, Harper & Brothers, 1940. Pp. xiv, 552.

Metaphysics in Modern Times. A Present-day Perspective. By D. W. GOTSHALK. Chicago, The University of Chicago Press, 1940. Pp. xii, 110.

The Stoic and Epicurean Philosophers. The complete extant writings of Epicurus, Epictetus, Lucretius, Marcus Aurelius. Edited, and with an Introduction by WHITNEY J. OATES. New York, Random House, 1940. Pp. xvi, 628.

The Steps of Humility. By BERNARD, Abbot of Clairvaux. Translated, with introduction and notes, as a study of his epistemology by GEORGE BOSWORTH BURCH. Cambridge, Massachusetts, Harvard University Press, 1940. Pp. xii, 286.

Nature and Functions of Authority. By YVES SIMON. The Aquinas Lecture, 1940. Milwaukee, Marquette University Press, 1940. Pp. viii, 78.

The Problem of Religious Knowledge. By DOUGLAS CLYDE MACINTOSH. New York, Harper & Brothers, 1940. Pp. xviii, 390.

Shall not Perish from the Earth. By RALPH BARTON PERRY. New York, The Vanguard Press, 1940. Pp. 160.

An Introduction to Hegel. By G. R. G. MURE. Oxford, Oxford University Press, 1940. Pp. xxii, 180.

Rousseau and Burke. A Study of the Idea of Liberty in Eighteenth-Century Political Thought. By ANNIE MARION OSBORN. New York, Oxford University Press, 1940. Pp. xii, 272.

Meno. Interprete HENRICO ARISTIPPO. Edidit VICTOR KORDEUTER. Recognovit et praefatione instruxit CARLOTTA LABOWSKY. *Plato Latinus.* Edidit RAYMUNDUS KLIBANSKY. Londinii, In aedibus instituti Warburgiani, MCMXL. Pp. xxii, 92.

NOTES

A Conference on Science, Philosophy and Religion in their relation to the democratic way of life was held September 9-11 at the Jewish Theological Seminary of America, New York City. According to the preliminary announcement by the sponsors, it is expected that this Conference "will serve as the first step toward a more general project, looking to the integration of Science, Philosophy and Religion".

The publishers of *Philosophic Abstracts* announce a dictionary of philosophy for publication in the summer of 1941. Although embraced in one volume, the dictionary covers metaphysics, ethics, epistemology, logic, philosophy of religion, esthetics, philosophy of law, philosophy of education, social philosophy and philosophical psychology. Special emphasis has been placed on the definition of basic concepts and terms germane to the contemporary schools of philosophy, logical positivism, dialectical materialism, mathematical logic, neo-scholasticism, philosophy of science, Chinese, Jewish and Indian philosophy.

The following is a list of articles in current philosophical periodicals:

MIND XLIX 195: *G. H. von Wright,* On Probability; *Adolfo Levi,* The Ethical and Social Thought of Protagoras; *H. F. Hallett,* Knowledge, Reality, and Objectivity (II); *Norman Malcolm,* The Nature of Entailment.

PHILOSOPHY XV 59: *A. R. Ritchie,* The Ethics of Pacifism; *F. O. Wisdom,* Hegel's Dialectic in Historical Philosophy; *G. Burniston Brown,* Archimedes and Eddington; *B. A. Farrell,* "In the Beginning . . ."; *C. D. Broad,* Eddington's "Philosophy of Physical Science"; *E. F. Carritt,* Hegel and Prussianism; *H. D. Oakeley,* Fascism and Nazism; *Guido de Ruggiero,* Philosophy in Italy.

THE JOURNAL OF PHILOSOPHY XXXVII 15: *Charles E. Bures,* Operationism, Construction, and Inference; *George Morgan, Jr.,* Selfishness and Unselfishness; *Folke Leander,* Comments and Criticism. 16: *Laurence J. Lafleur,* Conceptual Relativity; *Virgil C. Aldrich,* The Spirit of the New Positivism. 17: *Irwin Edman,* Professor Green's "Critique of Art"; *Vincent Tomas,* Has Professor Greene Proved that Art is a Cognitive Process?

ETHICS L 4: *R. W. Pickford,* Ethics and Instinct; *Rubin Gotesky,* Social Sources and the Significance of Hobbes's Conception of the Law of Nature; *William J. Sanders,* The Logical Unity of John Dewey's Educational Philosophy.

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